SAMSUNG

DLP TV

Chassis : M62A(P)Atlantis_ASIA
Model : SP50L3HXX/SAP

SERVICE Manual

DLP TV

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1. Specifications

MODEL	**SP46L3H**	**SP50L3H**	**SP56L3H**	**SP61L3H**
Voltage	AC100V ~ 240V			
Frequency of Operation	50Hz / 60Hz			
Power Consumption	200 Watts			
DIMENSIONS (W x D x H)	1094 x 339 x 814 mm 43.07 x 13.35 x 32.05 inches	1182 x 359 x 870 mm 46.54 x 14.13 x 34.25 inches	1330 x 396 x 962.5 mm 52.36 x 15.59 x 37.89 inches	1446 x 424 x 1034.5 mm 56.93 x 16.69 x 40.73 inches
Weight	31.5Kg / 69.44 Ibs	35Kg / 77.16 Ibs	41.5Kg / 91.49 Ibs	45Kg / 99.21 Ibs

MEMO

2. Alignment and Adjustments

2-1 When Entering Service Mode:

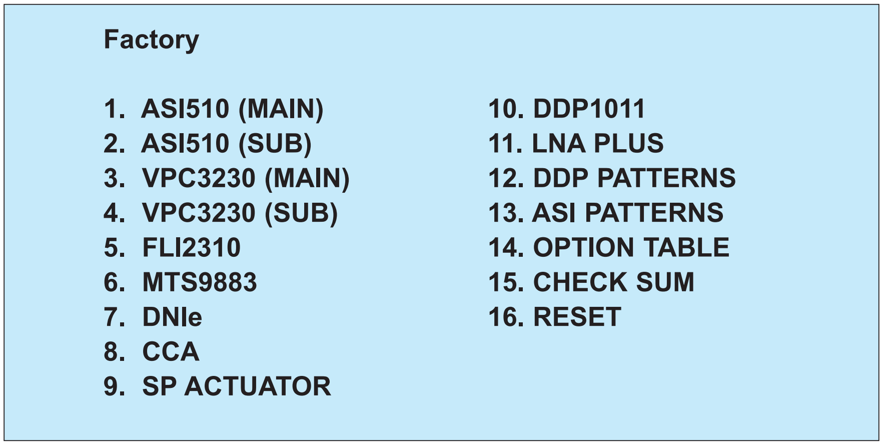
2-1-1 Service Mode Entry Method

1. Turn off the power to make the SET STAND-BY mode.

2. In order to enter the Service Mode, Press "INFO" → "MENU” → "MUTE" → "POWER" button on the Remote Control.
In case entry into SERVICE MODE is unsuccessful, repeat the procedures above.

2-1-2 Initial DISPLAY State in times of SERVICE MODE Switch overs

2-1-2(A) OSD DISPLAY



Factory

1. ASI510 (MAIN)
2. ASI510 (SUB)
3. VPC3230 (MAIN)
4. VPC3230 (SUB)
5. FLI2310
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9. SP ACTUATOR
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15. CHECK SUM
16. RESET

2-1-2(B) BUTTONS OPERATIONS WITHIN SERVICE MODE

MENU	Full Menu Display / Move to Parent Menu
Direction keys ▲ / ▼	Item Selection by Moving the Cursor
Direction keys ◀ / ▶	Data Increase/Decrease for the Selected Item
Source	Cycles through the active input source that are connected to the unit

2-1-3 Details of Control

1) ASI510 (MAIN)

ITEM NAME	DEFAULT	Range	REMARK
Gamma Red	32	0 ~ 127	
Gamma Green	32	0 ~ 127	
Gamma Blue	32	0 ~ 127	
Sub Color Enable	0	0 ~ 1	
Sub Color	16	0 ~ 1	
Sharpness Filter 1	0	0 ~ 63	
Sharpness Filter 2	0	0 ~ 63	
Sharpness Filter 3	0	0 ~ 63	
Sharpness Filter 4	0	0 ~ 63	
Sharpness Filter 5	0	0 ~ 63	
Sharpness Filter 6	0	0 ~ 63	
Sharpness Filter 7	0	0 ~ 63	
Sharpness Filter 8	0	0 ~ 63	
Sharpness Filter 9	0	0 ~ 63	
Sharpness Filter 10	0	0 ~ 63	
Filter H Limit	3	0 ~ 3	
Filter V Limit	3	0 ~ 3	
Filter H Chroma Limit	3	0 ~ 3	
Filter V Chroma Limit	3	0 ~ 3	
Chroma Filter Enable	0	0 ~ 1	
Noise Filter 0	0	0 ~ 15	
Noise Filter 1	0	0 ~ 15	
Noise Filter 2	0	0 ~ 31	
Noise Filter 3	0	0 ~ 15	
Noise Filter 4	0	0 ~ 15	
Noise Filter 5	0	0 ~ 31	
Noise Filter 6	0	0 ~ 15	
Noise Filter 7	0	0 ~ 15	
Noise Filter 8	0	0 ~ 31	
Noise Filter Enable	0	0 ~ 1	
NR Filter Enable	0	0 ~ 1	

2) ASI510 (SUB)

ITEM NAME	DEFAULT	Range	REMARK
Gamma Red	32	0 ~ 127	
Gamma Green	32	0 ~ 127	
Gamma Blue	32	0 ~ 127	
Sub Color Enable	0	0 ~ 1	
Sub Color	16	0 ~ 1	
Sharpness Filter 1	0	0 ~ 63	
Sharpness Filter 2	0	0 ~ 63	
Sharpness Filter 3	0	0 ~ 63	
Sharpness Filter 4	0	0 ~ 63	
Sharpness Filter 5	0	0 ~ 63	
Sharpness Filter 6	0	0 ~ 63	
Sharpness Filter 7	0	0 ~ 63	
Sharpness Filter 8	0	0 ~ 63	
Sharpness Filter 9	0	0 ~ 63	
Sharpness Filter 10	0	0 ~ 63	
Filter H Limit	3	0 ~ 3	
Filter V Limit	3	0 ~ 3	
Filter H Chroma Limit	3	0 ~ 3	
Filter V Chroma Limit	3	0 ~ 3	
Chroma Filter Enable	0	0 ~ 1	
Noise Filter 0	0	0 ~ 15	
Noise Filter 1	0	0 ~ 15	
Noise Filter 2	0	0 ~ 31	
Noise Filter 3	0	0 ~ 15	
Noise Filter 4	0	0 ~ 15	
Noise Filter 5	0	0 ~ 31	
Noise Filter 6	0	0 ~ 15	
Noise Filter 7	0	0 ~ 15	
Noise Filter 8	0	0 ~ 31	
Noise Filter Enable	0	0 ~ 1	
NR Filter Enable	0	0 ~ 1	

3) VPC3230 (MAIN)

ITEM NAME	Initial Value	Range	REMARK
BRIGHTNESS	20	-128~127	updated when h'40(Scale mode register) is written
H LPF	0	0~3	
H LPF CHROMA	0	0~1	
CONTRAST	42	0~63	updated when h'40(Scale mode register) is written
H PEAKING FILTER	2	0~2	
H PEAKING GAIN	2	0~7	
CORING Enable	0	OFF/ON	
LUMA DELAY	0	Fixel	updated when h'20(SDT) is written
IF compensation	0	0~3	Off/6dB/12dB/10dB
Chroma Bandwidth	1	0~3	narrow/normal/broad/wide
Luma LPF Enable	0	OFF/ON	
HPLL SPEED	2	0~3	No change/ Terrestrial/ VCR/ Mixed
V PEAKING	0	0~15	
YUV CONTRAST	27	0~63	480i YPbPr (Component mode)
YUV BRIGHTNESS	70	-128~127	
YUV SATCB	42	0~63	
YUV SATCR	43	0~63	
YUV TINT	0	0~63	
RGB CONTRAST	29	0~63	Scart RGB (AV mode)
RGB BRIGHTNESS	68	-128~127	
RGB SATCB	26	0~63	
RGB SATCR	30	0~63	
SATURATION	2200	0~4096	
TINT	00		

4) VPC3230 (SUB)

ITEM NAME	DEFAULT	Range	REMARK
BRIGHTNESS	20	-128~127	updated when h'40(Scale mode register) is written
H LPF	0	0~3	
H LPF CHROMA	0	0~1	
CONTRAST	42	0~63	updated when h'40(Scale mode register) is written
H PEAKING FILTER	2	0~2	
H PEAKING GAIN	2	0~7	
CORING Enable	0	OFF/ON	
LUMA DELAY	0	Fixel	updated when h'20(SDT) is written
IF compensation	0	0~3	Off/6dB/12dB/10dB
Chroma Bandwidth	1	0~3	narrow/normal/broad/wide
Luma LPF Enable	0	OFF/ON	
HPLL SPEED	2	0~3	No change/ Terrestrial/ VCR/ Mixed
V PEAKING	0	0~15	
YUV CONTRAST	27	0~63	480i YPbPr (Component mode)
YUV BRIGHTNESS	70	-128~127	
YUV SATCB	42	0~63	
YUV SATCR	43	0~63	
YUV TINT	0	0~63	
RGB CONTRAST	25	0~63	Scart RGB (AV mode)
RGB BRIGHTNESS	68	-128~127	
RGB SATCB	23	0~63	
RGB SATCR	31	0~63	
SATURATION	2200	0~4096	Scart RGB (AV mode)
TINT	00		

5) FLI2310

ITEM NAME	DEFAULT	Range	REMARK
MOTION THRES	30	0 ~ 255	
CONTRAST	128	0 ~ 255	
BRIGHTNESS	128	0 ~ 255	
SATURATION	128	0 ~ 255	
Y OFFSET	0	-1024 ~ 1023	2's complement
Cb OFFSET	0	-1024 ~ 1023	2's complement
Cr OFFSET	0	-1024 ~ 1023	2's complement
NR	1	OFF/ON	OFF : 1, ON : 0

6) MST9883

ITEM NAME	DEFAULT	Range	REMARK
RED GAIN	88	0 ~ 255	
GREEN GAIN	88	0 ~ 255	
BLUE GAIN	88	0 ~ 255	
RED OFFSET	128	0 ~ 255	
GREEN OFFSET	128	0 ~ 255	
BLUE OFFSET	128	0 ~ 255	
PB GAIN	142	0 ~ 255	
Y GAIN	128	0 ~ 255	
PR GAIN	142	0 ~ 255	
PB OFFSET	125	0 ~ 255	
Y OFFSET	106	0 ~ 255	
PR OFFSET	125	0 ~ 255	
Auto Color			

7) DNIe

NO	ITEM	RANGE	DEFAULT	REMARK
1	PATT_SEL		0	Test Pattern Selection
2	SNI_PROC_SET		096B	DNIe Block Enb/Bypass
3	NR_MAX_Y/C	0 ~ 255	48	Temporal NR Gain
4	NR_MIN_Y/C	0 ~ 255	16	Temporal NR Gain
5	NR_HPF_TH	0 ~ 7	00	Spatial NR Gain
6	NR_EDGE_TH	0 ~ 7	05	
7	NR_SEL	0,1,2,3	02	NR Mode Selection
8	NEOnDE	0,1	00	DE Parameter Value Selection
9	NEOnDCE	0,1	00	DCE Parameter Value Selection
10	NEOnCE	0,1	00	CE Parameter Value Selection
11	RTH2	0 ~ 15	08	NEOnDE User Set Up
12	Core	0 ~ 15	04	NEOnDCE User Set Up
13	ALPHAL	0 ~ 255	128	CE Gain
14	ALPHAU	0 ~ 255	128	
15	CE_CUTOFF	0 ~ 255	32	Boundary value for the lowerr part of Contrast Enhance
16	CE_UPPER	0 ~ 255	220	Boundary value for the lowerr part of Contrast Enhance
17	CE Gain Max L/U	0 ~ 255	160	CE Gain
18	DCE_GAIN_L/U	0 ~ 255	50	DCE Gain
19	B_RATIO		10000	Low level information for the minimum value
20	BLACK_TILT	0 ~ 255	120	Black Stretch Area
21	Black Gain Max	0 ~ 1023	358	
22	W_RATIO	~	12000	High level information for the minimum value
23	WHITE_TILT	0 ~ 255	200	
24	White Gain Max	0 ~ 1023	358	
25	GAIN 1X	0 ~ 127	8	Gain of horizontal high frequency region
26	GAIN 1Y	0 ~ 63	8	Gain of vertical high frequency region
27	GAIN 2X	0 ~ 63	12	Gain of horizontal middle frequency region
28	GAIN 2Y	0 ~ 63	4	Gain of vertical middle frequency region
29	GAIN 3X	0 ~ 63	1	Gain of horizontal low frequency region
30	NDON	0,1	1	Background Noise Detection ON/OFF Switch
31	CORING_ON	0 ~ 7	1	Coring On/Off

NO	ITEM	RANGE	DEFAULT	REMARK
32	SCALE_R	0 ~ 128	128	Log Mapping Gain
33	CORING_TH1	0 ~ 3	1	
34	CORING_TH2	0 ~ 255	1	
35	CORING_TH3	0 ~ 15	1	
36	M_CCT_FAC	0 ~ 255	80	
37	MATR_CBR	0 ~ 2047	0	YCBCR2RGB Color Matrix Conversion Coefficient Value
38	MATR_CRR	0 ~ 2047	770	YCBCR2RGB Color Matrix Conversion Coefficient Value
39	MATR_CBG	0 ~ 2047	2038	YCBCR2RGB Color Matrix Conversion Coefficient Value
40	MATR_CRG	0 ~ 2047	1784	YCBCR2RGB Color Matrix Conversion Coefficient Value
41	MATR_CBB	0 ~ 2047	908	YCBCR2RGB Color Matrix Conversion Coefficient Value
42	MATR_CRB	0 ~ 2047	0	YCBCR2RGB Color Matrix Conversion Coefficient Value
43	SCALE_ALPHA	0 ~ 255	140	Gain Value of CTE
44	RED_C_COEFF	0 ~ 255	128	Gain adjustment of the contrast for the Red Signal
45	GRN_C_COEFF	0 ~ 255	128	Gain adjustment of the contrast for the Green Signal
46	BLU_C_COEFF	0 ~ 255	128	Gain adjustment of the contrast for the Blue Signal
47	RED_B_COEFF	0 ~ 255	128	Gain adjustment of the brightness for the Red Signal
48	GRN_B_COEFF	0 ~ 255	128	Gain adjustment of the brightness for the Green Signal
49	BLU_B_COEFF	0 ~ 255	128	Gain adjustment of the brightness for the Blue Signal
50	Gamma On		0	Gamma On/Off
51	Dither Mode		0	1bit/2bit/bypass Mode
52	Sub_Contrast	0 ~ 150	102	Brightness adjustment for the height-light parts of the screen
53	Sub_Brightness	0 ~ 500	250	Brightness adjustment for the low-light parts of the screen

8) CCA

NO	ITEM	DEFAULT	REMARK
01	CCA	On	
02	M_Red-x	671	
03	M_Red-y	320	
04	M_Red-Y	75	
05	M_Green-x	307	
06	M_Green-y	693	
07	M_Green-Y	381	
08	M_Blue-x	145	
09	M_Blue-y	52	
10	M_Blue-Y	51	
11	M_White-x	264	
12	M_White-y	283	
13	M_White-Y	504	
14	D_Red-x	655	
15	D_Red-y	326	
16	D_Red-G	1000	
17	D_Green-x	282	
18	D_Green-y	690	
19	D_Green-G	1000	
20	D_Blue-x	147	
21	D_Blue-y	64	
22	D_Blue-G	1000	
23	D_Cyan-x	190	
24	D_Cyan-y	260	
25	D_Cyan-G	1000	
26	D_Magneta-x	277	
27	D_Magneta-y	131	
28	D_Magneta-G	1000	
29	D_Yellow-x	445	
30	D_Yellow-y	534	
31	D_Yellow-G	1000	
32	D_Cool2-Wx	263	
33	D_Cool2-Wy	267	
34	D_Cool2-Wg	1000	
35	D_Cool1-Wx	269	
36	D_Cool1-Wy	274	
37	D_Cool1-Wg	1000	
38	D_Normal-Wx	280	
39	D_Normal-Wy	288	
40	D_Normal-Wg	1000	
41	D_Warm1-Wx	293	
42	D_Warm1-Wy	302	
43	D_Warm1-Wg	1000	
44	D_Warm2-Wx	313	
45	D_Warm2-Wy	324	
46	D_Warm2-Wg	1000	
47	Desired_RGB	On	
48	DVI Move		

9) DDP1011

ITEM NAME	DEFAULT	Range	REMARK
V-Position	30	0 ~ 60	
H-Position	60	0 ~ 120	
LAMP	2	0 ~ 4	
Index delay	48/40	0 ~ 1023	
Seq Select	5/3	0 ~ 15	
V-Flip	Normal	0 ~ 1	
H-Flip	Normal	0 ~ 1	
Gamma	2	0 ~ 15	
SLR	0	0 ~ 1	
DMD-Bias	3	0 ~ 4	
Lamp Sync Delay	0/120	0 ~ 4095	
Lamp Boost	not used/20	0~255	

10) LNA PLUS

RF_DB-1

ITEM NAME	DEFAULT	Range	REMARK
BASE LEVEL	100	0 ~ 1024	
PK	2	0 ~ 7	
LPF2	1	0 ~ 3	
PKCOR	0	0 ~ 1	
H_P_F_ENABLE	00	0 ~ 10	
SCALE_NOISE_Y	30	0 ~ 255	
SCALE_NOISE_C	100	0 ~ 255	
DEP_GAIN2_X	4	0 ~ 255	
DEP_GAIN2_Y	4	0 ~ 255	
DEP_GAIN3_X	01	0 ~ 255	
DNIe_DEP_GAIN	30	0 ~ 255	

RF_DB-2

ITEM NAME	DEFAULT	Range	REMARK
BASE LEVEL	230	0 ~ 1024	
PK	1	0 ~ 7	
LPF2	1	0 ~ 3	
PKCOR	1	0 ~ 1	
H_P_F_ENABLE	0	0 ~ 10	
SCALE_NOISE_Y	2	0 ~ 255	
SCALE_NOISE_C	2	0 ~ 255	
DEP_GAIN2_X	2	0 ~ 255	
DEP_GAIN2_Y	2	0 ~ 255	
DEP_GAIN3_X	1	0 ~ 255	
DNIe_DEP_GAIN	20	0 ~ 255	

RF_DB-3

ITEM NAME	DEFAULT	Range	REMARK
BASE LEVEL	650	0 ~ 1024	
PK	0	0 ~ 7	
LPF2	1	0 ~ 3	
PKCOR	0	0 ~ 1	
H_P_F_ENABLE	0	0 ~ 10	
SCALE_NOISE_Y	0	0 ~ 255	
SCALE_NOISE_C	0	0 ~ 255	
DEP_GAIN2_X	0	0 ~ 255	
DEP_GAIN2_Y	0	0 ~ 255	
DEP_GAIN3_X	0	0 ~ 255	
DNIe_DEP_GAIN	0	0 ~ 255	

11) DDP PATTERNS

DDP PATTERNS	REMARK
White	
Red	
Green	
Blue	
Cyan	
Mazenta	
Yellow	
H Ramp	
V Ramp	
H Lines	
Diagonal Lines	
V Lines	
Grid	
Checkerboard	
V frequency	

12) ASI PATTERNS

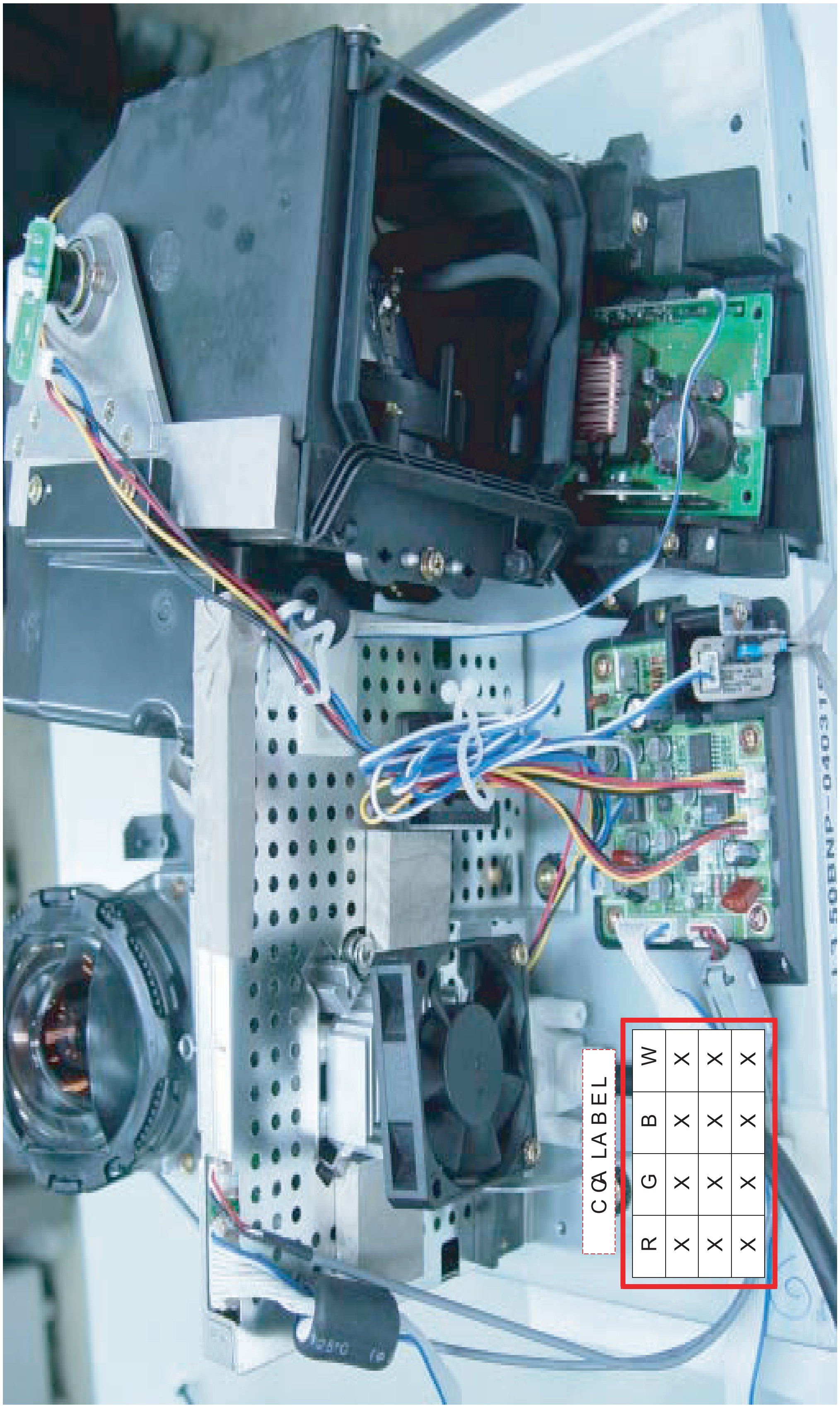
ITEM NAME	DEFAULT	Range	REMARK
CROSS BAR			
CROSS HATCH			
CHECKER			
CHARACTER			
BOX			
STEP 64			
STEP 32			
STEP 16			
STEP 8			
COLOR BAR			
FILKER_100			
FILKER_75			
FILKER_50			
FILKER_25			

13) OPTION

No.	ITEM	DEFAULT	CHINA	ASIA	EUROPE
1	Language Group	Europe	China	Asia	Europe
2	Language	English	Chinese	English	English
3	Jack Type	Scart	RCA	RCA	Scart
4	ATM/Area	ATM	Area	Area	ATM
5	CW/CS	CW	CS	CS	CW
6	LNA	On	ON	On	On
7	TOP TTX	On	Off	Off	On
8	TTX Group	West Europe	West Europe	West Europe	West Europe
9	AV Input	TV	Last Memory	Last Memory	Last Memory
10	High Deviation	On	On	Off	Off
11	Carrier Mute	On	Off	On	On
12	Auto Power	On	On	On	On
13	DNIe Demo	On	On	On	On
14	Melody Volume	0~20	5	5	5
15	DDC Write Enable	On	Off	Off	Off
16	Plug & Play	On	On	On	On
17	Arabic/Persian	Arabic	Arabic	Arabic	Arabic
18	Debugger	Not User	Not User	Not User	Not User
19	TTX Enable/Disable	Disable	Enable	Enable	Enable
20	Lamp Timer				
21	Lamp Timer Clear				
22	SCART WSS	Normal	Normal	Normal	Normal
23	LNA Plus	On	On	On	On
24	Pilot High	0~255	13	13	13
25	Pilot Low	0~255	7	7	7
26	Sound Delay SD		Delay 390	Delay 390	Delay 390
27	Sound Delay HD		Delay 18	Delay 18	Delay 18

2-1-4 CCA Adjustment Service Methods

1) Condition of the CCA Label upon Receipt of the Service Engine



R	G	B	W
X	X	X	X
X	X	X	X
X	X	X	X

2) State of the CCA Measured Value Input in SET FACTORY MODE

[For Export]	[For Domestic]
CCA ON/OFF	CCA ON/OFF
Red - x : ???	Red - x : ???
Red - y : ???	Red - y : ???
Red - Y : ???	Red - Y : ???
Green - x : ???	Green - x : ???
Green - y : ???	Green - y : ???
Green - Y : ???	Green - Y : ???
Blue - x : ???	Blue - x : ???
Blue - y : ???	Blue - y : ???
Blue - Y : ???	Blue - Y : ???
White - x : ???	White - x : ???
White - y : ???	White - y : ???
White - Y : ???	White - Y : ???
WB SPREAD	WB SPREAD
DVI MOVE	DVI MOVE
D-White - x : 297	D-White - x : 277
D-White - y : 287	D-White - y : 270

3) CCA Service Procedures

1. Select FACTORY CCA mode on the SET.
2. Input the CCA basic engine data to the SET.
3. Input the D-White -x, y values in the coordinates per destination.
4. Switch the CCA OFF to ON, then check the picture quality and adjust (as listed below) if necessary.
   ※ From the 100% White Pattern, change the D-White x value to adjust the tint of the Red color: Higher the value emphasizes the Red color, lower the value weakens the Red color. Find appropriate value for Red Color.
   ※ From the 100% White Pattern, change the D-White y value to adjust the tint of the Green color: Higher the value emphasizes the Green color, lower the value weakens the Green color. Find appropriate value for Green Color.
5. Select WB SPREAD, then press Enter to activate the WB Spread SET ensuring that you adjust until you get the OK sign. After adjusting, exit Factory Mode.
6. When the adjustment is complete, check the picture quality. If necessary change the D-White x,y values to the desired tint.

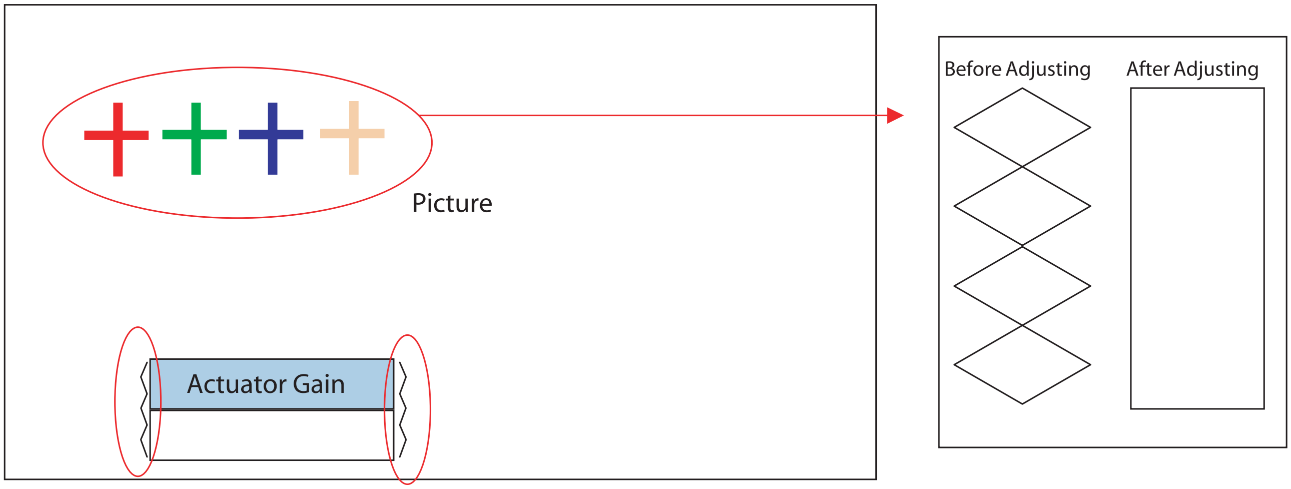
2-1-5 INDEX DELAY Adjustment

1. Turn off the power to make the SET STAND-BY mode.
2. In order to enter the Service Mode, Press “Mute” -> “1” -> “8” -> “2” -> “POWER” button on the Remote Control.
3. Select the “1. DDP1011” on the first display of ther Service Mode.
4. Press the ▲▼ (Up or Down) button to move to INDEX DELAY, then press ENTER to select.
5. The INDEX DELAY setup screen (with a red bar at the bottom of the screen) will be displayed.
6. Press the ◀▶ (Left of Right) button to check the red color at the bottom of the screen at its minimum and maximum values, then adjust to the mean value.

2-1-6 ACTUATOR GAIN Adjustment

1) Before Adjustment

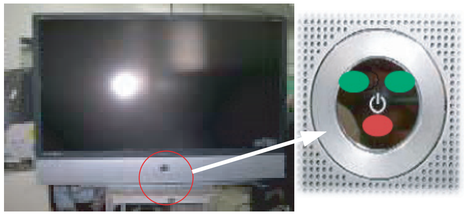
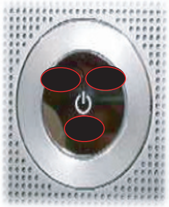
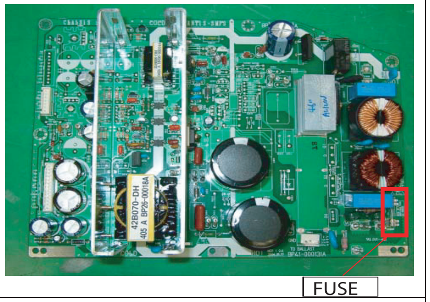
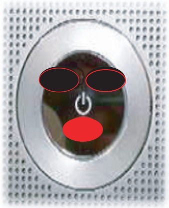
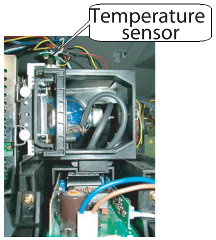
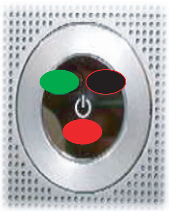
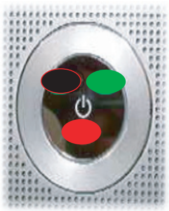
1. On the Factory Transmitter's display -> Move to Factory Mode, then select ACTUATOR GAIN for the SP Actuator.

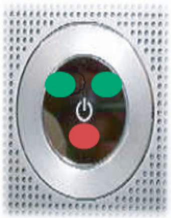
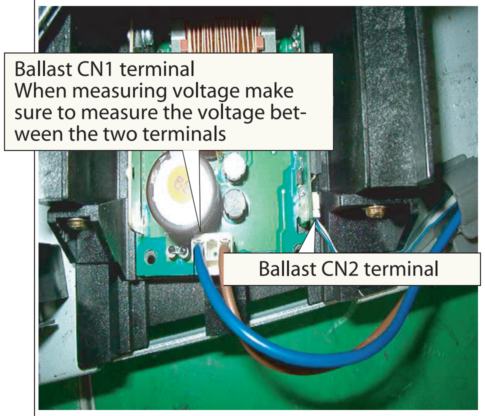
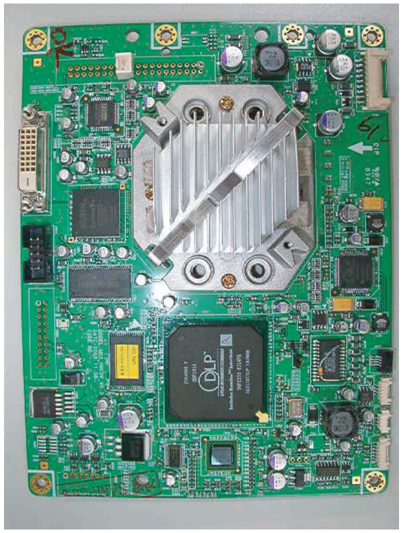


2) Making Adjustments

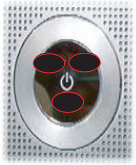
1. As shown in the picture above, change the actuator values to eliminate saw tooth shapes from the A and B areas.
    - To fine tune, increase the data value ensuring that you get the center between the starting and ending points of the disappearing saw tooth shape.
    -> Move "5" steps further from the point where A disappears.
2. To fine tune the upper and lower areas, refer to the saw tooth shape (in the picture below) and the red, green, blue and white crosshair shape (as shown above) respectively for further adjustment.

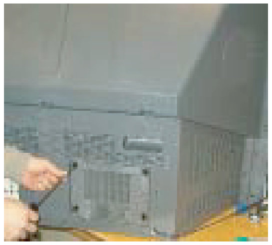
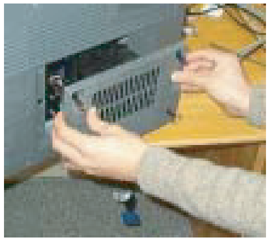
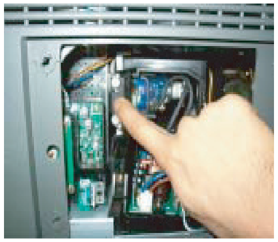
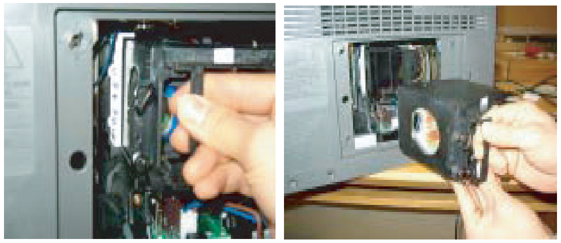
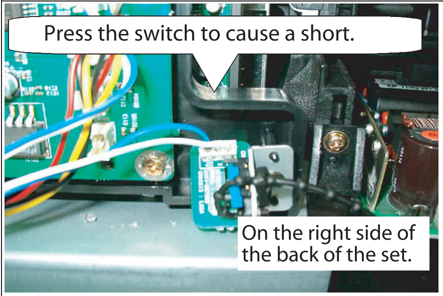
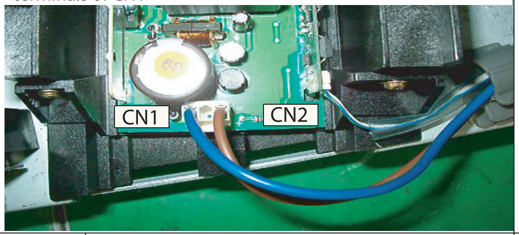
2-2 Contents Failure Repair Methods

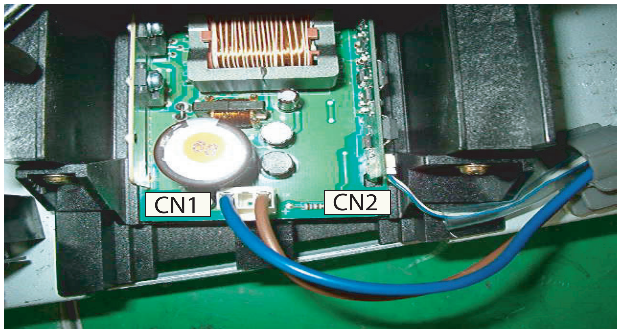
No.	Item	Picture	Description	Remarks
1	Normal operation [LED Status]		1.When the power cord is plugged in, the LED indicator is not lit. 2.When the set is turned on via the remote control, the Lamp LED indicator at the right upper is lit. 3.When the timer setting function is used, the Timer LED indicator at the left upper is lit.	1. Flickering of the Lamp LED indicator means that the lamp is about to be turned on. 2. The ON state of the Lamp LED indicator means that the lamp has been turned on.
	Failure Type	Picture	Inspection Items	Remarks
	When the set is turned on, the Lamp LED does not flicker.		1. Check whether or not the power cord is connected. 2. Check the line filter fuse. 3. Check the connections of the ANALOG CN802 and CN803 connectors. 4. Check the connection of the DIGITAL CN128 connector and check if 5.7V power has een supplied to pin #3.	
	When the TEMP LED indicator flickers.		1. Check whether the temperature sensor connector attached to the engine has been inserted normally into CN106 on the Sub Detect/Actuator board. 2. Check whether the temperature sensor is normal when both terminals have been short-circuited (connected).	
	1.TIMER and TEMP LED blinking 2. LAMP and TEMP LED blinking	①  ② 	1. Check if the fan operates when TIMER and TEMP LED blinks. 2. Check that the cover detection switch is inserted at CN107 on the Sub Detect/Actuator board when LAMP and TEMP LED blinks. 3. When LAMP and TEMP LED blink, check that the lamp cover is properly assembled and that the switch-pressing boss(inside) is not bent.	

No.	Item	Picture	Description	Remarks
1	When the TIMER,LAMP and TEMP LED Indicators filcker simultaneously.	  Ballast CN1 terminal When measuring voltage make sure to measure the voltage between the two terminals Ballast CN2 terminal	1. If the 3 LED indicators flicker from the time the set is turned on, it means: 1) The CN602 connector on the DMD board is not inserted properly. 2) The DVI cable that connects the DIGITAL board to the DMD board is not connected properly. 3) If the lamp does not turn on even after turning it on three times, by powering off/on 15 second intervals: ! The B+ 260V power is not supplied to the ballast (The cable is not connected properly between the power and the ballast.) @ The cable connected to the CN109 terminal on the DMD board and the CN2 terminal on the ballast is short-circuited or not connected. # The lamp does not turn on because 5V has not been supplied to blue pin #1 on the CN2 terminal of the ballast. $ 5V is supplied to the CN2 terminal on the ballast but the lamp does not turn on because the ballast has a failure. (If the lamp is replaced and 5V is supplied normally to the CN2 terminal, suspect a ballast failure if the lamp still does not turn on.) % The ballast is normal but the lamp doest not turn on. (When 5V is supplied to CN2 and 385V to CN1, but the lamp does not turn on, try replacing the lamp. If it turns on, that means it was a lamp failure.) 4) The color wheel engaged to the engine does not operate, or the connector which indicates the operation of the color wheel is not connected properly, and therefore does not allow the lamp to turn on. The cause can be determined when the set still does not turn on after attempting to turn it on three times. 5) Another digital board or the DMD board has a failure. Conclusively, if the three LED indicators flicker, first check the above five items, then check the various connector connections, and then suspect a failure of the lamp or the ballast.	

■ Failure if the LED indicator is normal but the screen is not displayed.

No.	Item	Picture	Description	Remarks
2	First	Check whether the External LED indicator of the set is normal.	1. When the power cord is plugged in, the LED indactor is not lit 2. What the set is turned on via the remote control the LAMP LED indicator at the left upper is lit	
	Second	Check whether the ANALOG board LED indicators inside the set are lit.	All of the three LED indicators should be turned on. * You can observe those LED indicators at the back of the set. All three LED indicators should be turned on.	
	Third	Check whether the set lamp is turned on.	When the lamp is turned off, replace it. * When you turn on the set again after replacing the lamp, - It should turn on within 30 seconds. (For 50 and 61 inch TVs) *If more than one minute passes before it turns on, or if it does not turn on, replace both the ballast within the engine and the lamp.	

2	Fourth [Lamp replacement]	Unplug TV, then use a screwdriver to remove the screw.	Remove the Lamp cover.	Remove the screws securing the Lamp by hand	Separate the Lamp from the engine by holding the handle and pulling it out	To reinstall the Lamp, follow these steps in reverse order.
						
	Fifth [Ballast operation check]	Open the back cover of the set and short the protection switch.	Check whether the power and the lamp enable signal have been supplied to the ballast.	Repair plan		
		 Press the switch to cause a short. On the right side of the back of the set.	1. Check whether 5V is supplied to the blue terminal of CN2 2. Check whether DC 380V is supplied to both end terminals of CN1 	1) If 5V is applied to the CN2 terminal of the ballast, but the lamp does not turn on, replace the ballast. 2) When 5V is not supplied, replace first the DMD board attached to the engine. If the lamp still does not work, replace the engine. * For repair methods of the DMD board, refer to separate instructions.		
	Sixth [The lamp is normal, but a blank screen failure occurs.]	Check the signal supply procedure. [Check whether the signals are supplied from the analog board to the digital board]	Method for inspecting whether signals are being supplied from the digital board to the DMD board	DMD board inspection method		
		1) Check in which mode the screen does not display. 2) If the RF, VIDEO, DVD, or DTV mode screen does not display, check the Analog CN257 terminals, Digital CN127 connector connections, and their signaling. 3) If the DVI or PC mode screen does not display, replace and inspect the digital board. 4) If the screen does not display in any mode, check whether the signals are being output from the digital board.	Check the output of the IC117 terminal. If the signal output state is normal, suspect the DMD board. * Refer to the Digital Board Description Diagram.	1) Check whether +26V and -26V is being supplied to the DMD board. -> If the voltage is abnormal, replace the tantal condenser (C108, C109: When failure occurs intermittently.) If the problem continues after replacement, then replace the power drive IC (IC107). 2) If the DMD voltage is normal, replace the panel, or reassemble the panel. (Try to fix the four silver screws again.) * Refer to the DMD Board Description Diagram.		

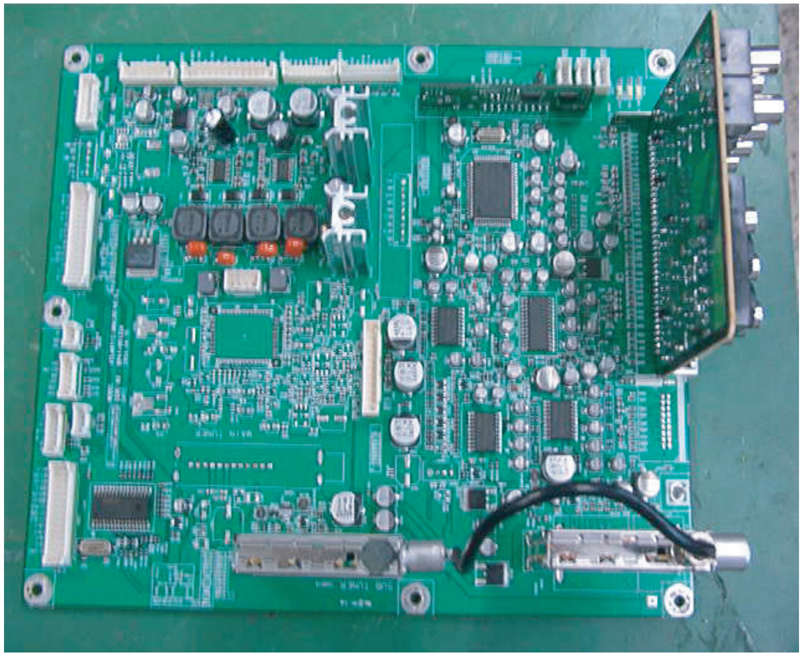
2	Seventh [DMD state inspection method]	Remove the heat sink attached to the DMD board and follow the directions given below. 1) Replace the heat sink. Fix the DMD by tightening the screws again. 2) Check signaling for each part.	Horizontal raster failure occurs. [Check whether the output of the R NETWORK RA101~ RA104 terminals of the DMD board are normal.]	Vertical line failure occurs. * Check whether it occurs within the regular wide range. (Less than 26mm for 50-inch TV)	
		* Refer to the DMD Panel PIN Terminals Characteristics Diagram.	* Refer to the DMD Board Description Diagram	1) If it appears at regular intervals of less than 26mm, check the DMD fixing state. → Loosen the four silver screws and then re-assemble them. 2) If the vertical lines do not occur at regular intervals, or the intervals are more than 26mm, or irregular, replace IC115 (DDP1010).	
3	Noise failure	Check the noise state of the color wheel. 1) If the noise of color wheel is loud, replace the engine or the color wheel. 2) When the color wheel is replaced, make sure to adjust the delay value of 1.DDP1010 to factory settings. (Adjust to the position where the color red is strongest.)	Fan noise 1) Check the revolving state of the fan to inspect whether the fan wire is caught on the wings, then check the bearing noise.	Ballast noise 1) Check whether there is noise from the ballast, if noise is too loud, replace the ballast.	
		The color wheel is attached as shown in the following figure. Loosen the screws which fix the outer parts and then replace the color wheel.	50-inch: Three fans 61-inch: Three fans		

2-3 ASSY PCB ANALOG Service Manual

ASSY PCB ANALOG Terminal Spec Characteristics

ASSY PCB ANALOG General Characteristics
1. Receives general TV signals and supplies VIDEO (COMPOSITE) signals to the DIGITAL BOARD.
2. Controls switching for and amplifies (IC133,IC134,IC137,IC140,IC124) all of the RF and sound signals, and outputs them to the speaker.
3. The power is distributed from the POWER board through the ANALOG board to the DIGITAL board. Therefore, wrong insertion of the lead connector may cause a power failure. Make sure to insert the lead connector with the protrusions on the connector header placed in the right direction.
4. If a blank screen failure occurs in the RF (general TV) mode and the ALL mode, first, check whether signals are supplied to the pins of the CN257 terminal on the Analog board, and then check whether normal signals are supplied to the Digital board and the DMD board.
5. Mode switching failure between the TV/VIDEO1 and the PC mode may not be identified when connecting the jack if any of the IC129 PINs are short-circuited or IC itself has a failure.

ANALOG BOARD (ASSY CODE : BP94-02153B)
(PCB CODE : BP41-00122C)



Analog board pin assignment

CN257

Supplies AV Signals to PCB DIGITAL

Pin Name	I/O	PIN No.		I/O	Pin Name
Comp1-Y	←	1	2		GND
Comp1-Pb	←	3	4		GND
Comp1-Pr	←	5	6		GND
Comp2-Y	←	7	8		GND
Comp2-Pr	←	9	10		GND
Comp2-Pb	←	11	12		GND
N.C.	←	13	14		GND
N.C.	←	15	16		GND
N.C.	←	17	18		GND
Main-Y/V	←	19	20		GND
Main-C	←	21	22		GND
Sub-Y/V	←	23	24		GND
Sub-C	←	25	26		GND
Caption-CVBS	←	27	28		GND
IR	←	29	30		GND

CN258

Connects Control Signals between PCB Analog and PCB Digital

Pin Name	I/O	PIN No.		I/O	Pin Name
LED1	↔	1	2	↔	SDA-Micom
LED2	→	3	4	←	SCL-Micom
LED3		5	6		GND
Key1	←	7	8	↔	SDA-Analog
Key2		9	10	←	SCL-Analog
Reset-D	←	11	12		GND
I2C-STOP	←	13	14	←	SDA-Digital
Power-SW	←	15	16		SCL-Digital
N.C.		17	18	←	GND
N.C.	←	19	20	←	I2S-CLK-HDMI
GND	←	21	22		I2S-EN-HDMI
MCLK_AUDIO	→	23	24		I2S-DATA-HDMI
S-MUTE	→	25	26	←	GND
PC-L	→	27	28	←	DVI-L
PC-R		29	30		DVI-R
GND	←	31	32	←	GND

CN243 / CN244

Receives Power Signals from PCB POWER

Pin Name	PIN No.		Pin Name
Power-Mute	1	2	S14.5VB
S-GND	3	4	S14.5VB
S-GND	5	6	5.7VB
GND	7	8	12VB
GND	9	10	12VB
GND	11	12	70VB
GND	13	-	

Pin Name	PIN No.		Pin Name
5VA	1	2	GND
33VB	3	4	GND
Power-SW	5	6	N.C.
N.C.	7	-	

CN208

Supplies Power Signals to PCB DMD

Pin Name	PIN No.		Pin Name
5VB	1	2	5VB
GND	3	4	GND
12VB	5	6	12VB
GND	7	8	GND
GND	9	-	-

CN251

Pin Name	SUB Detector/Actuator	PIN No.		SUB Detector/Actuator	Pin Name
GND	Ground	1	2	Fan-VCC	12VB
GND	Ground	3	4	SDA-Memory	SDA-M
SCL-M	SCL-Memory	5	6	Ground	GND
5VA	5VA	7	8	Ground	GND
70VB	70VB	9	10	Ground	GND

CN223

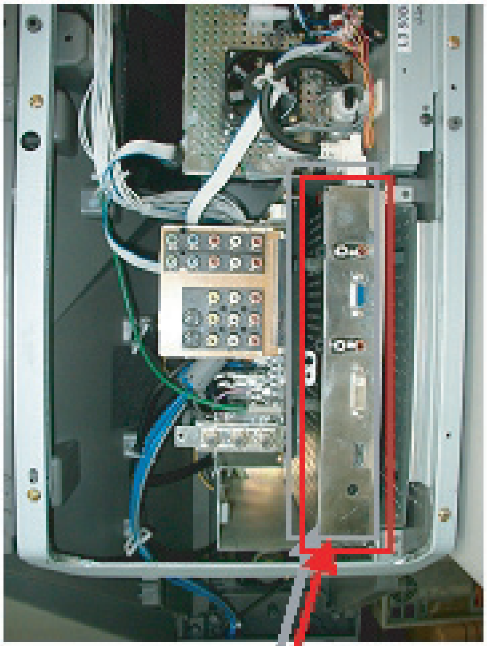
Receives AV Signals from PCB SIDE-AV

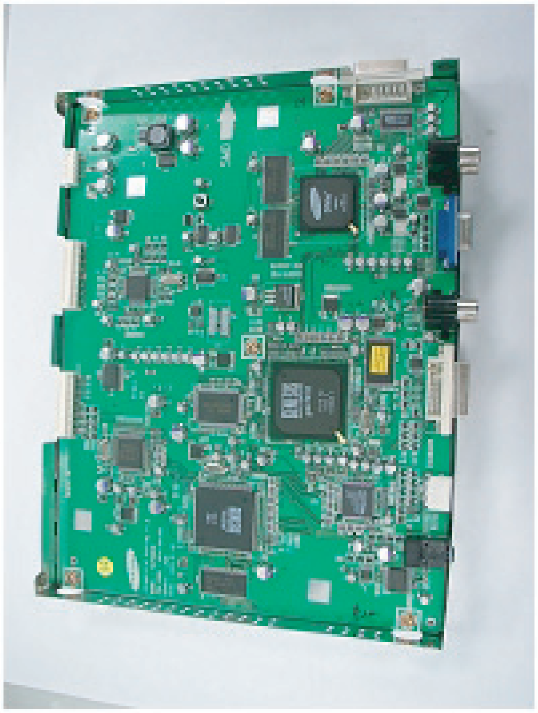
Pin Name	Side AV	PIN No.		Side AV	Pin Name
Side-Y	SVHS Y (Luma)	1	2	SVHS C (Chroma)	Side-C
GND	Ground	3	4	Video (CVBS)	Side-V
GND	Ground	5	6	Side Sound L	Side-L
GND	Ground	7	8	Side Sound R	Side-R
GND	Ground	9	10	SVHS Jack Detect	Side-SDET
Side-VDET	Video Jack Detect	11	-		

I/O Expander Pin Assignment

	DES	NAME	PIN		PIN	NAME	DES	
GND		VSS	1	S3P9428/32-SOP	32	VDD		
		XIN	2		31	P0.2	I/O	S1-DET
		XOUT	3		30	P0.3	I/O	S2-DET
GND		TEST	4		29	P0.4	I/O,ADC	Side-SDET
Comp2-DET	I/O	P0.1	5		28	P0.5	I/O,ADC	V1-DET
Comp1-DET	I/O	P0.0	6		27	P0.6	I/O,ADC	V2-DET
RESET-D		RESET	7		26	P0.7	I/O,ADC	Side-VDET
RF-SEL	O	P3.0	8		25	P3.1	O	SOUND-RESET
LNA-SW	O	P3.2	9		24	P3.3	O	DEFAULT
MTNR-AFT	I/O,ADC	P2.0	10		23	P1.0	I/O	DELAY1
STNR-AFT	I/O,ADC	P2.1	11		22	P1.1	I/O	DELAY2
N.C	I/O,ADC	P2.2	12		21	P1.2	I/O	GAIN0
N.C	I/O,ADC	P2.3	13		20	P1.3	I/O	GAIN1
RF-AGC	I/O,ADC	P2.4	14		19	P2.7	SCL	SCL-A
GND	ADDRESS	P2.5	15		18	P2.6	SDA	SDA-A
GND		AVSS	16		17	AVREF		

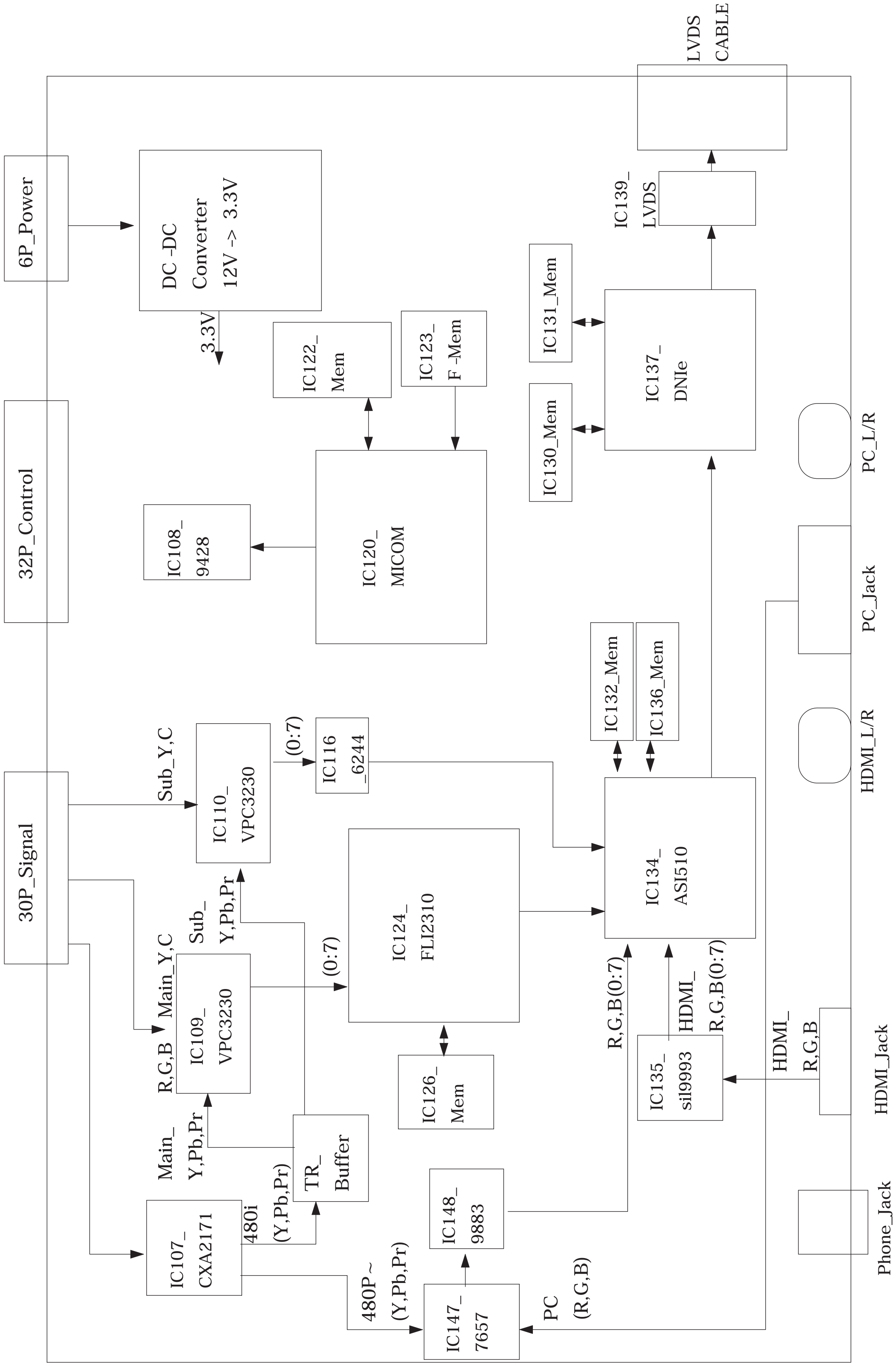
2-4 ASSY PCB DIGITAL Service Manual





DIGITAL BOARD (ASSY CODE :BP94-02163A)
(PCB CODE : BP41-00166A)

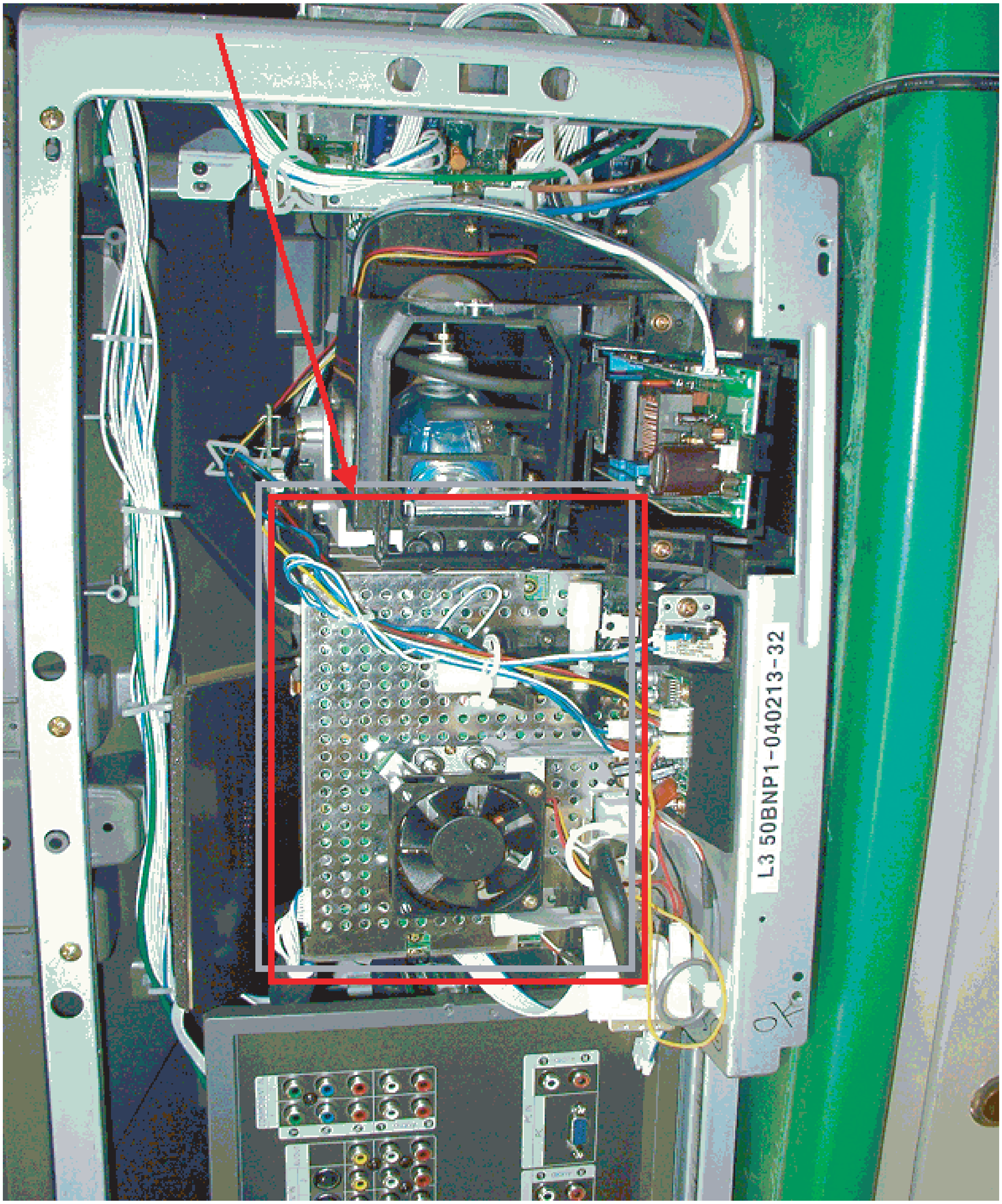
2-4-1 Digital Board Characteristics


LVDS
CABLE
6P_Power
DC -DC
Converter
12V -> 3.3V
3.3V
IC139_
LVDS
IC131_Mem
IC122_
Mem
IC123_
F -Mem
IC137_
DNIe
IC130_Mem
PC_L/R
32P_Control
IC108_
9428
IC120_
MICOM
PC_Jack
IC132_Mem
IC136_Mem
HDMI_L/R
Sub_Y,C
IC110_
VPC3230
(0:7)
IC116
_6244
30P_Signal
IC134_
ASI510
Sub_
Y,Pb,Pr
IC124_
FLI2310
Main_Y,C
(0:7)
R,G,B
IC109_
VPC3230
R,G,B(0:7)
HDMI_
R,G,B(0:7)
HDMI_
R,G,B
HDMI_Jack
IC126_
Mem
IC135_
sil9993
Main_
Y,Pb,Pr
TR_
Buffer
(Y,Pb,Pr)
480i
IC148_
9883
Phone_Jack
IC107_
CXA2171
480P~
(Y,Pb,Pr)
PC
(R,G,B)
IC147_
7657

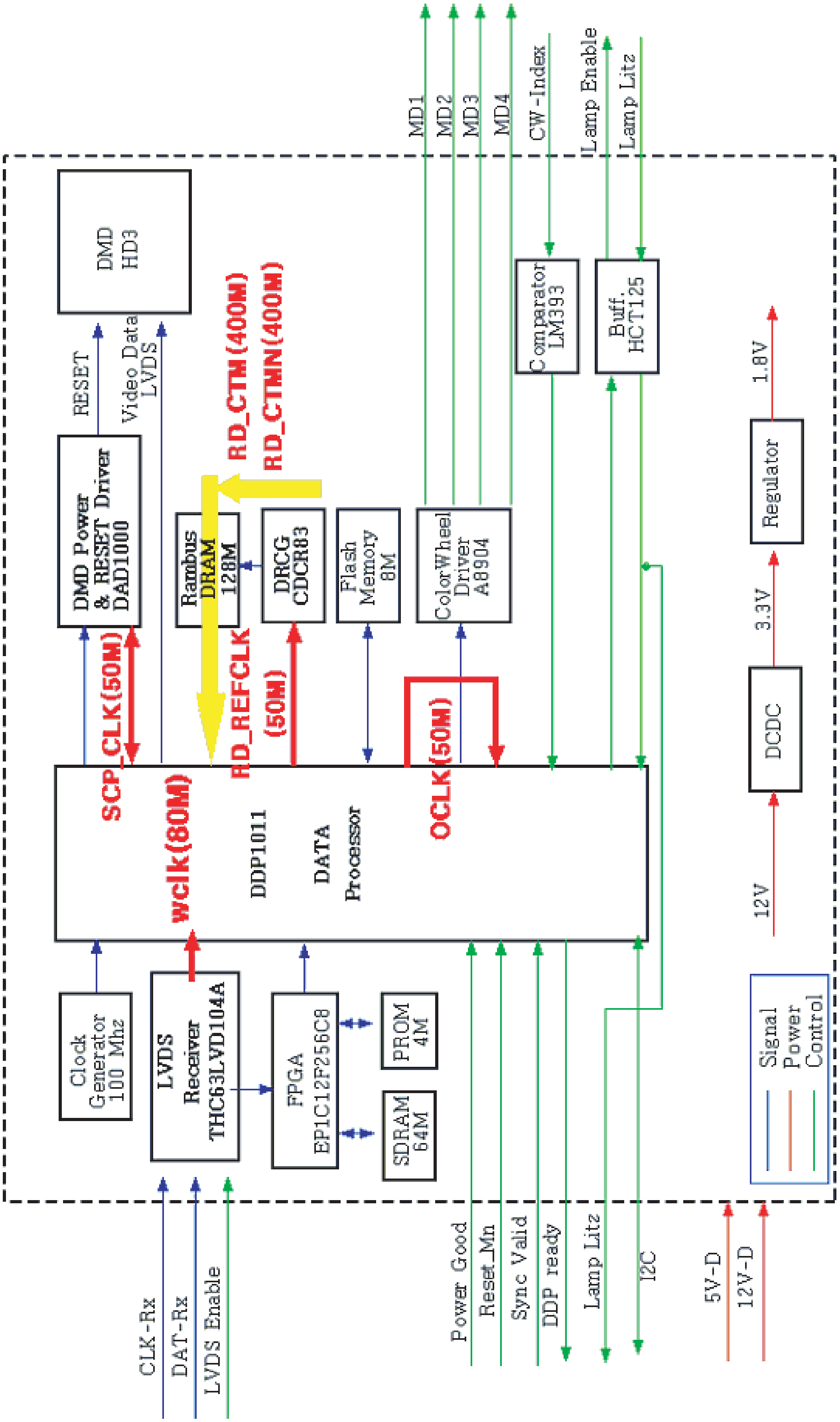
Digital board connector pin

REFERENCE	TERMINAL	SPEC	REFERENCE	TERMINAL	SPEC
CN127	1	COMP1-Y	CN126	1	LED1
	2	GND		2	SDA-MICOM
	3	COMP1-PB		3	LED2
	4	GND		4	SCL-MICOM
	5	COMP1-PR		5	LED3
	6	GND		6	GND
	7	COMP2-Y		7	KEY1
	8	GND		8	SDA-ANALOG
	9	COMP2-PB		9	KEY2
	10	GND		10	SCL-ANALOG
	11	COMP2-PR		11	RESET-D
	12	GND		12	GND
	13	N.C		13	I2C-STOP
	14	GND		14	SDA-DIGITAL
	15	N.C		15	POWER-SW
	16	GND		16	SCL-DIGITAL
	17	N.C		17	SCART1-FB
	18	GND		18	GND
	19	MAIN-Y		19	SCART3-FB
	20	GND		20	I2S-CLK-HDMI
	21	NAIN-C		21	GND
	22	GND		22	I2S-EN-HDMI
	23	SUB-Y		23	MCLK_AUDIO
	24	GND		24	I2S-DATA-HDMI
	25	SUB-C		25	S-MUTE
	26	GND		26	GND
	27	CAPTION-CVBS		27	PC-L
	28	GND		28	DVI-L
	29	IR		29	PC-R
	30	GND		30	DVI-R
CN128	1	12V		31	GND
	2	GND		32	GND
	3	5.7V			
	4	GND			
	5	5 V			
	6	GND			

2-5 ASSY PCB DMD Service Manual

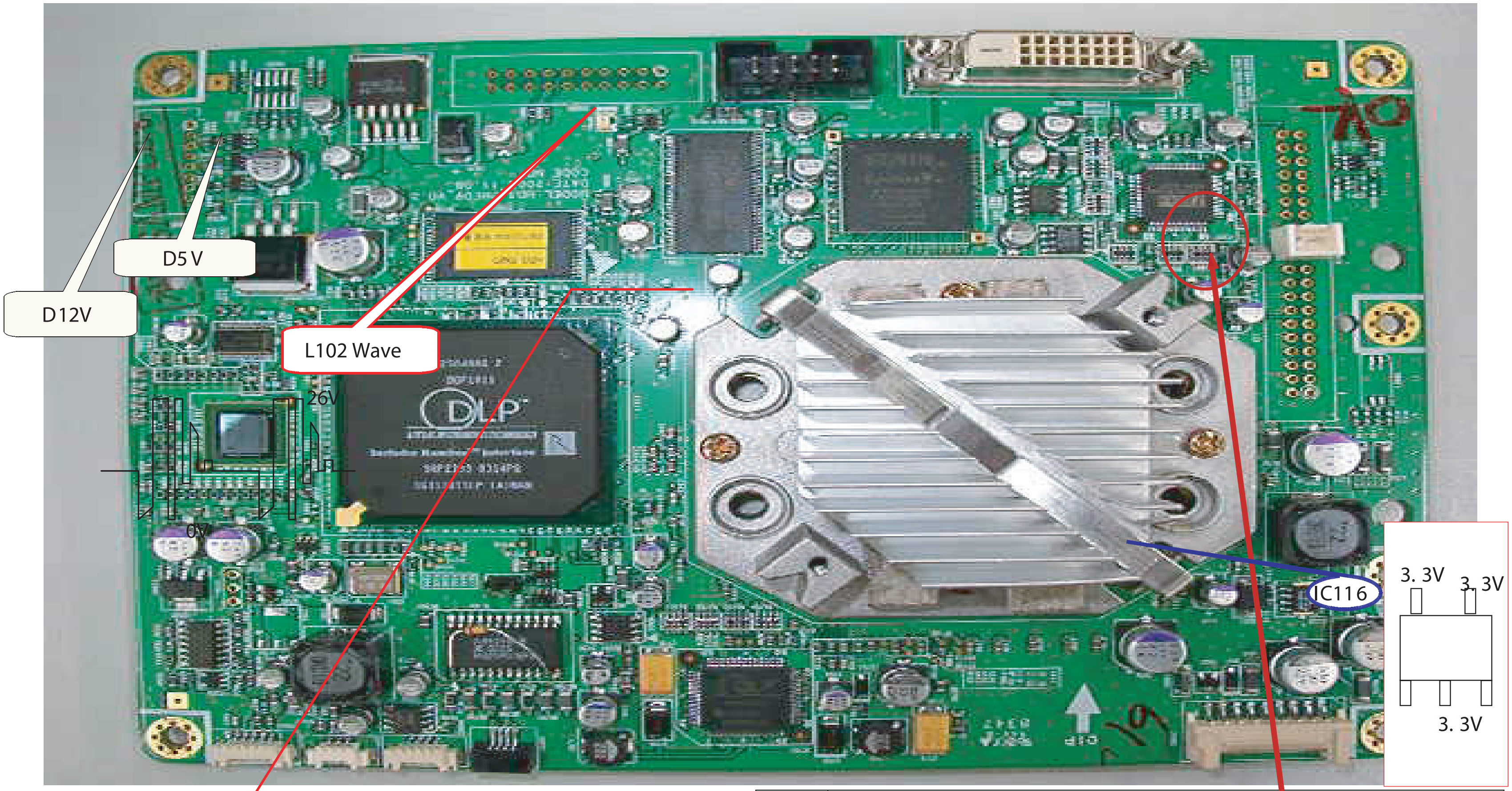

L3 50BNP1-040213-32
OK

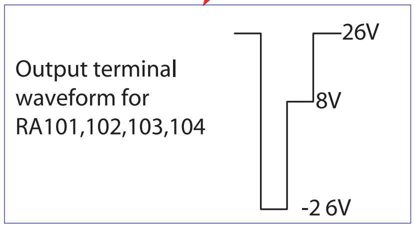
DMD BOARD BLACK DIAGRAM


DMD
HD3
RESET
Video Data
LVDS
DMD Power
& RESET Driver
DAD1000
Rambus
DRAM
128M
DRCG
CDCR83
Flash
Memory
8M
ColorWheel
Driver
A8904
Comparator
LM393
Buff.
HCT125
MD1
MD2
MD3
MD4
CW-Index
Lamp Enable
Lamp Litz
RD_CTM(400M)
RD_CTMN(400M)
SCP_CLK(50M)
RD_REFCLK
(50M)
OCLK(50M)
wclk(80M)
DDP1011
DATA
Processor
Regulator
DCDC
12V
3.3V
1.8V
Clock
Generator
100 Mhz
LVDS
Receiver
THC63LVD104A
FPGA
EP1C12F256C8
PROM
4M
SDRAM
64M
Signal
Power
Control
CLK-Rx
DAT-Rx
LVDS Enable
Power Good
Reset_Mn
Sync Valid
DDP ready
Lamp Litz
I2C
5V-D
12V-D

ASSY CODE (BP9 4-00484A)
PCB CODE (BP41-00119A)

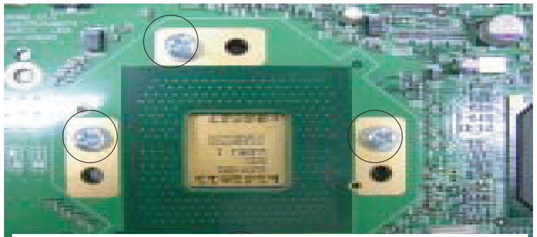
Output Voltage States of the DMD Board Parts


D5 V
D12V
L102 Wave
26V
0V
IC116
3. 3V
3. 3V
3. 3V


Output terminal waveform for RA101,102,103,104

LOC.	Characteristics	
R1 67	LA MP EN	High from DDP1010
R1 96	LAMP OUT	Outputs High signal. [SCI]
R2 19	LA MPL ITZ	High (5V) before the lamp turns on. Low (0V) when the lamp turns on.

DMD Panel Pin Terminal Characteristics Diagram



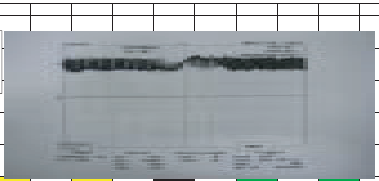
Remove the heat sink attached to the DMD board and tighten the screws in four places and then inspect the characteristics of each pin terminal.

PIN NAME	DESCRIPTION	PIN NAME	DESCRIPTION
V	VOLTAGE :3.3V	T	TEST POINT
V2	VCC2 :8V	ME	MIRROR BIAS EXTRA
DA	A CHANNEL DATA BUS[When measured, there should be a waveform.]	C	CLOCK
DB	B CHANNEL DATA BUS[When measured, there should be a waveform.]	P#	A,B CHANNEL POSITIVE
NO.	MBRST#(MIRROR BIAS REST) 26V	N#	A,B CHANNEL POSITIVE
G	The part from the present position to the GND (The black part is also a GND.)		

	40	39	38	37	36	35	34	33	32	31	30	29	28	27	26	25	24	23	22	21	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	
A				■		V		V		DA	N6	DA	N4	V		DA	N2	DA	P0	V		G		G		■		V		V		G		G		■		V		N	A
B			V						■		DA	P6	DA	P4	■		DA	P2	DA	N0	■		■		■		■		■		G				C		■		■		B
C		■		■		■		G		■		DA	P7	DA	P5	■		DA	N3	DA	N1	■		■		■		■		G				■		■		■		V	C
D	DA	N8	DA	P8	C		C		■		DA	N7	DA	N5	■		DA	P3	DA	P1	■		■		■		G				■						■		V		D
E		DA	N10	DA	P10	DA	P9	DA	N9																									■		■		■		V	E
F	V		■		■		■																										■		■		V		V2		F
G		DA	N12	DA	P12	DA	P11	DA	N11																									■		■		■		V2	G
H	V2		V2		DA	P13	DA	N13																									■		■		■		V2		H
J		V		■		■		■																										■		■		V		V2	J
K	DA	P14	DA	N14	DA	P15	DA	N15																									■		■				V		K
L		DB	P14	DB	N14	DB	P15	DB	N15																									■				ME		V	L
M	V		■		■		■																										■		14		11		V2		M
N		V2		V2		DB	P13	DB	N13																									10		5		1		V2	N
P	DB	N10	DB	P10	DB	P11	DB	N11																									■		4		V		V2		P
R		V		■		■		■																										■		■		V		V2	R
T	DB	N10	DB	P10	DB	P9	DB	N9																									■		■		■		V		T
U		DB	N8	DB	P8					■		DB	N7	DB	N5	■		DB	P3	DB	P1	■		6		3		T0		G						0		■		V	U
V	■		■		■		EV		■		DB	P7	DB	P5	■		DB	N3	DB	N1	■		13		9		■				G		■				■		V		V
W		V		C		C		■		DB	P6	DB	N4	■		DB	P2	DB	N0	■		12		8		■		7		T2		G		C		■		V			W
Y			■		V		V		DB	N6	DB	P4	V		DB	N2	DB	P0	V						■		V		2		T1		G		■		V				Y
	40	39	38	37	36	35	34	33	32	31	30	29	28	27	26	25	24	23	22	21	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	

The vertical lines, which may occur due to improper connections between the panel and the PCB, occur with intervals of 50 inches (26mm).
If vertical lines occur with intervals of more than 26mms, it indicates a failure of the DDP1010 IC soldering or IC itself.
If they occur with intervals of less than 26mm, it means that more than two pins have bad connections.

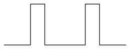
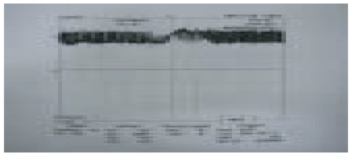
DA,DB output wave
[Screen:WHITE]



Description of Terminal Characteristics

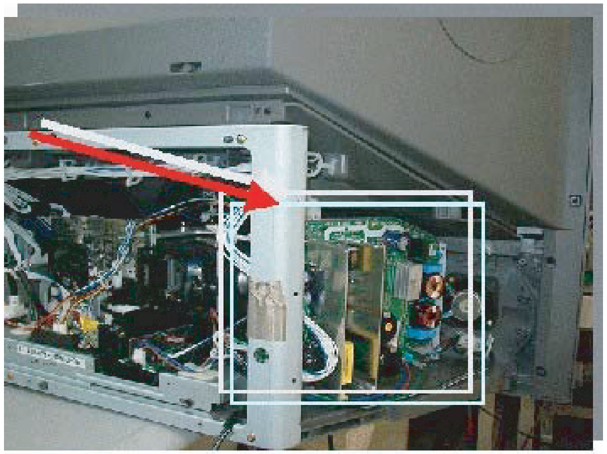
PIN NAME	DESCRIPTION
SCTRL_BN/P	B channel LVDS serial control
DCLK_BN/P	B-channel LVDS CLOCK
SCPDI	SERIAL CONTROL DATA INPUT
SCPDO	SERIAL CONTROL DATA OUTPUT
SCPENB	SERIAL CONTROL ENABLE
SCPCK	SERIAL CONTROL CLOCK
DMD RESETB	DMD LOGIC RESET
MBRST(14:0)	MIRROR BIAS RESET
MBRST_EXTRA	UNUSED MIRROR BIAS RESET
SCR_CLR	TEST CLEAR PINS (NORMAL GND)
READOUTA(1:0)	A-CHANNEL SERIAL DATA OUT DURING SRAM READ TEST OPERATION
READOUTB(1:0)	B-CHANNEL SERIAL DATA OUT DURING SRAM READ TEST OPERATION
TP(2:0)	MANUFACTORING TEST POINT(NO CONNECTED DURING NORMAL CPERATION)
RSV_A(4:0)/ RSV_B(4:0)	RESERVED PINS (NORMAL:GND)
EVCC	REFERENCE VOLTAGE DURING SRAM READ TEST OPERATION(NORMAL GND)
VCC2	MIRROR ELECTRODE VOLTAGE(7.3V)
VCC	LOGIC SUPPLY
VSS	LOGIC GROUND

Engine Failure Inspection Flow Chart for the DMD Board

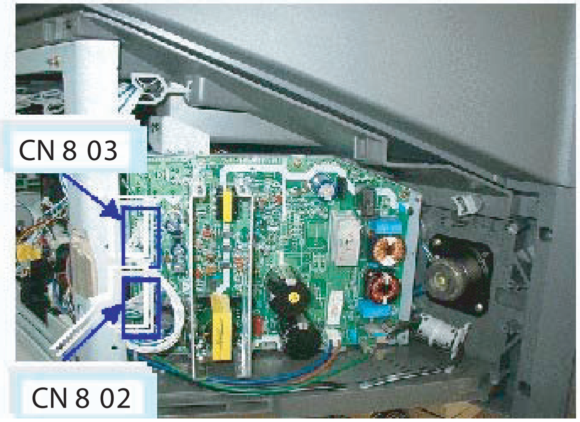
No.	Description	Key Point	Remark
1	1) When the power cord is plugged in, 2) DC 380V is automatically supplied to the ballast.	1) Check whether the DC380V power is supplied to the ballast.	* For domestic model, it is needed to check whether the master power switch is turned on. * The US model has no master power.
2	1) When the power key is pressed via the remote control, the micom of the digital board outputs high (5V) PWR signals. 2) The power board operates normally. 5V and 12V are supplied to the DMD CN105 terminal.	1) Check whether 5V and 12V are supplied to the CN105 terminal.	* 12V must be supplied to operate the motor. (The voltage of the motor driving power is 12V.)
3	1) The MTR Reset signal is supplied to the R161 terminal of the motor IC101 from the micom on the digital board and then the motor starts to drive. 2) If the color wheel rotates for a certain time and then stops, check whether the color wheel sensor is normal. (Check the waveform on the No.2 terminal below CN102. )	1) After the set is powered on, check whether 5V is detected on pin No.49 of IC101. * After a while, the sound generated by the rotating color wheel is heard.	* If 5V is not detected, the motor will not operate.
4	1) Check whether the signal (SCI: START CONTROL INPUT) that turns on lamp #2 of CN109 on the DMD board is high (5V).	1) Check whether CN109 #2 signal is 5V.	* When SCI is high (5V), the lamp litz of CN109 is low (0V). * CN109 #2 terminal voltage changes to pulse waveform 14 seconds after (for 50 inch TV) the time that the voltage is 5V. * When about 4 seconds have passed after changing to pulse waveform, the screens are displayed on the set.
5	1) Method for checking whether the DDP1010 IC RESET is normal.	1) If the voltage between R254 and R255 is 3V, it is normal.	
6	1) Check whether the signal and the voltage are output normally to the data line of DMD panel.	1) A waveform should be output on the data line. * Refer to the remarks.	

2-6 ASSY PCB POWER Service Manual

POWER BOARD (ASSY CODE : BP94-02170A)
(PCB CODE : BP41-00131C)



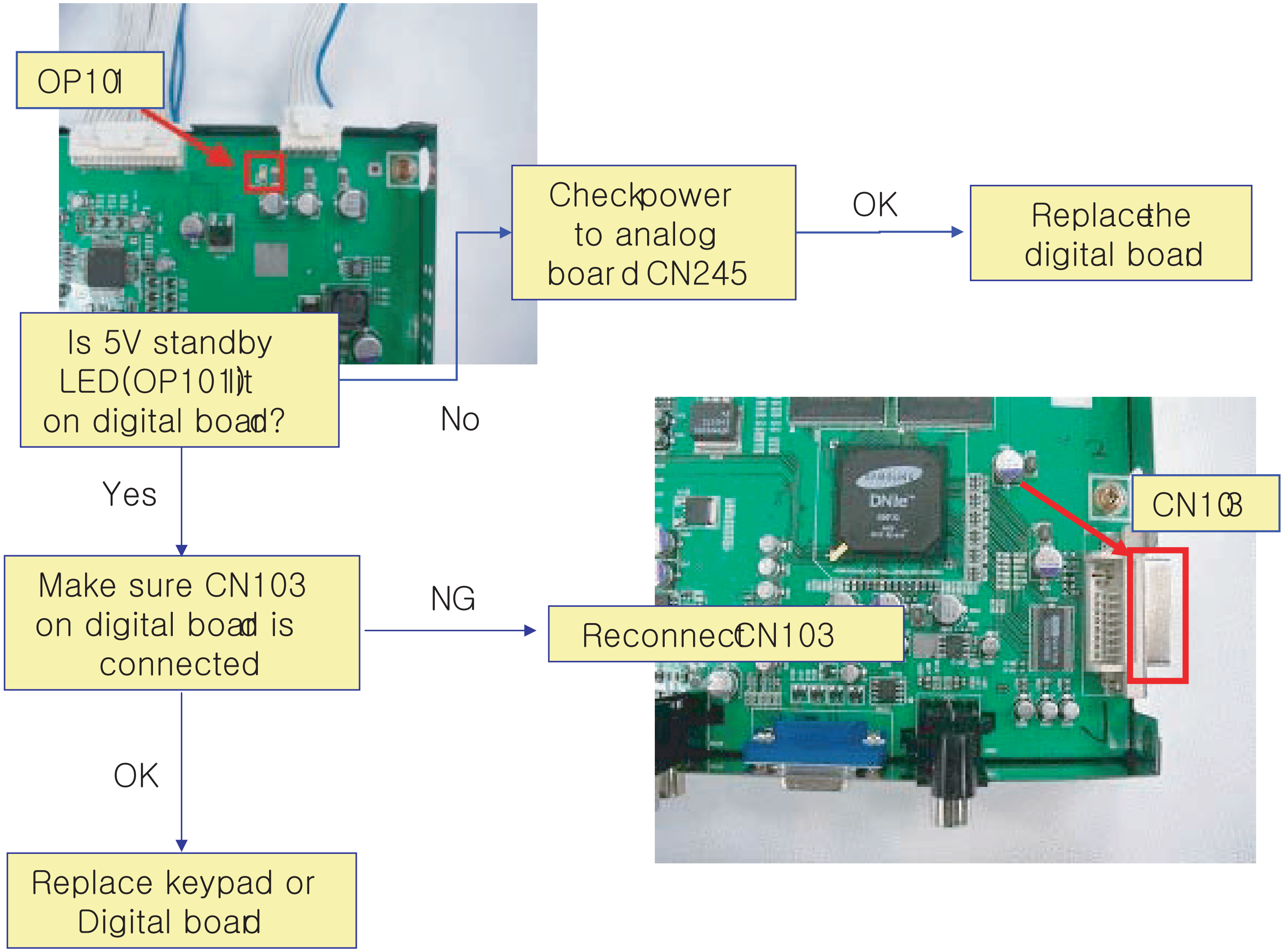
CN803							
Pin #	1	2	3	4	5	6	7
Spec	5V A	GND	33V B	GND	Power -S / W	N.C.	N.C
Used	Supplies DC voltage to the PCB ANALOG						



CN802							
Pin #	1	2	3	4	5	6	7
Spec	Powe r -Mute	S14. 5V B	S- GND	S14. 5V B	S- GND	5.7 VB	GN D
Pin #	8	9	10	1 1	12	13	
Spec	12V B	GND	12V B	GND	70V B	GND	
Used	Supplies DC voltage to the PCB ANALOG						

2-7 Troubleshooting

1. Dead SET



Is 5V standby LED(OP101) lit on digital board?

No → Check power to analog board CN245

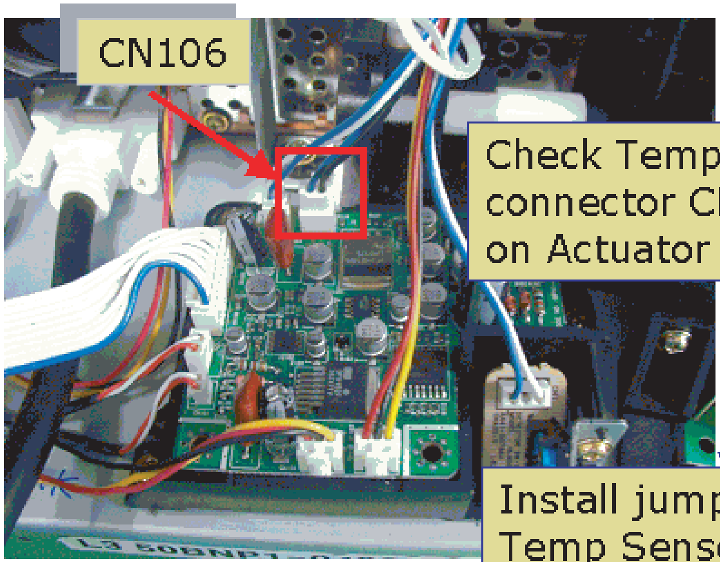
OK → Replace the digital board

Yes → Make sure CN103 on digital board is connected

NG → Reconnect CN103

OK → Replace keypad or Digital board

2. Blinking Temp LED



Check Temp Sensor connector CN106 on Actuator Board

NG → Re-insert connector

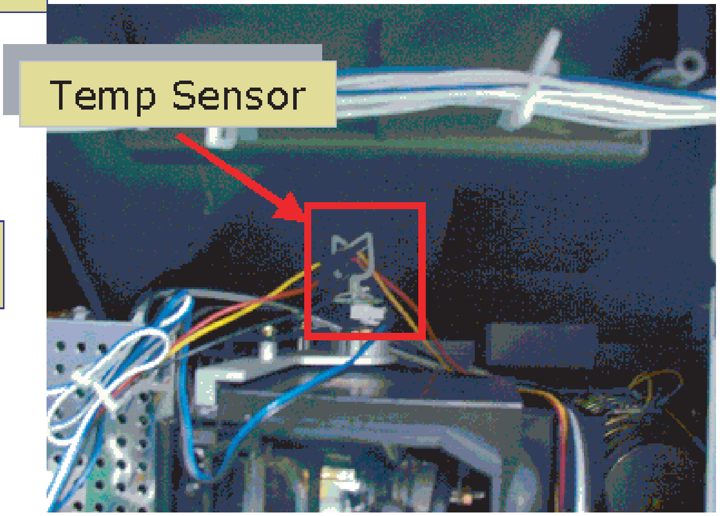
OK ↓

Install jumper across Temp Sensor Terminals. Does it work?

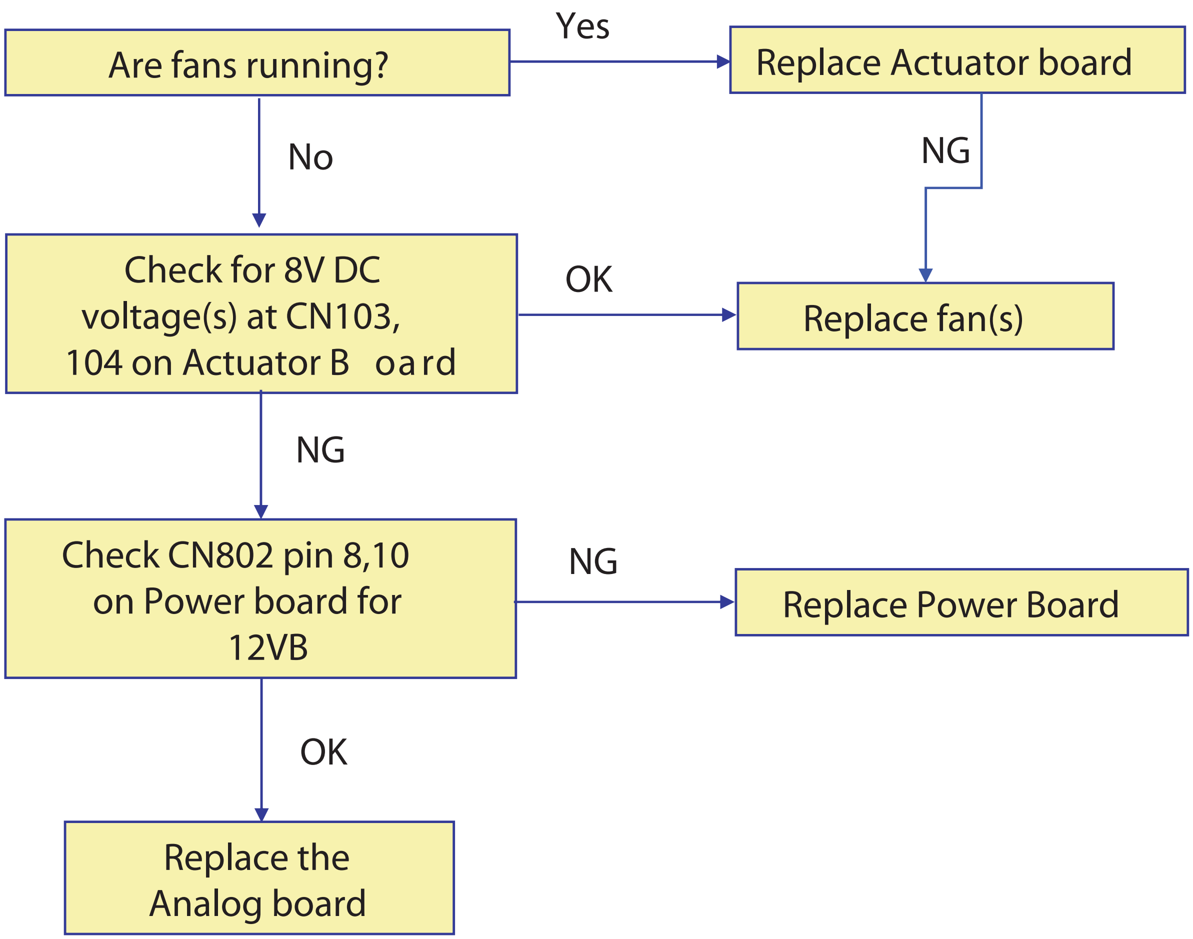
No → Replace the Actuator board

Yes ↓

Replace Temp Sensor.

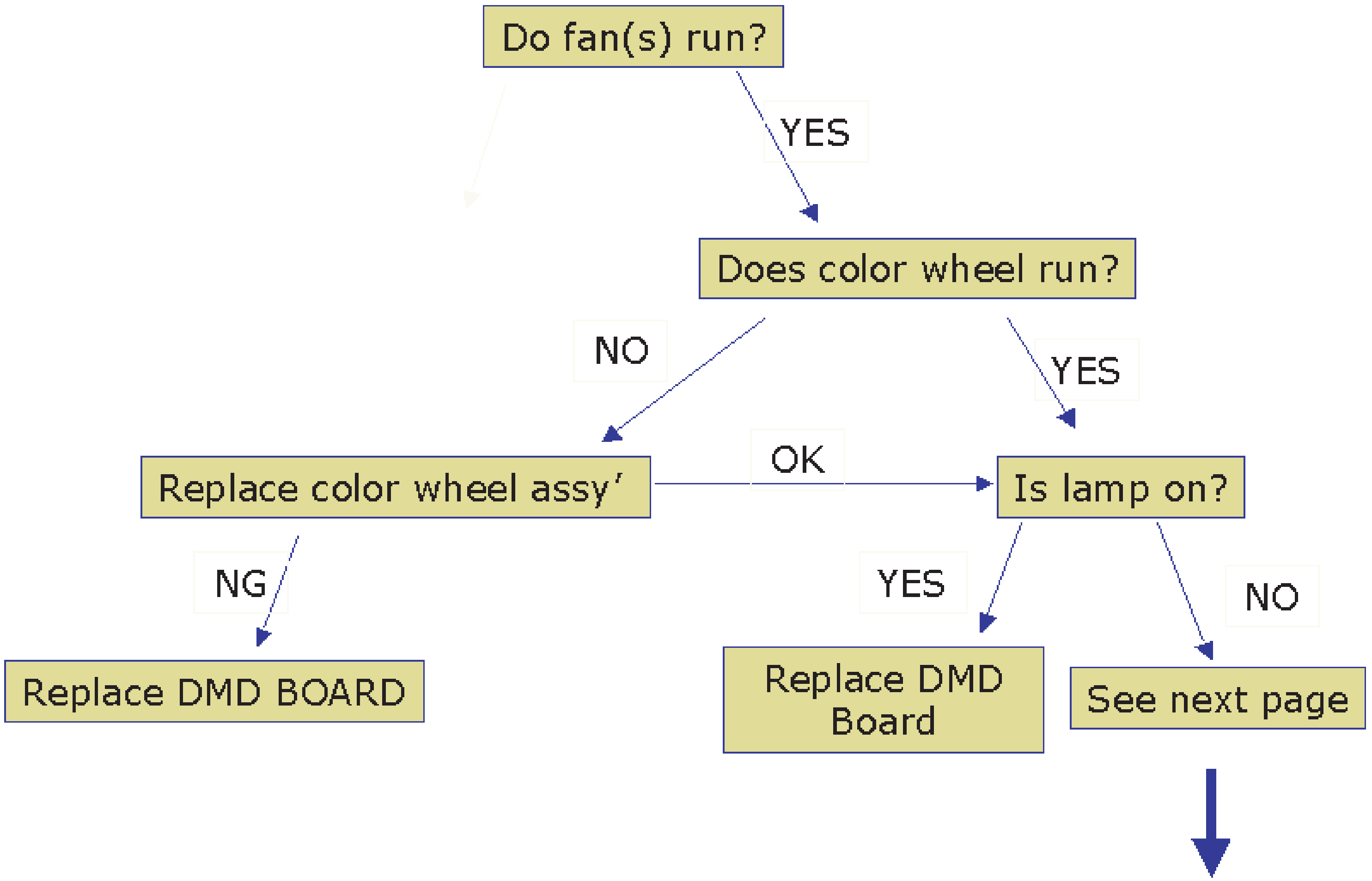


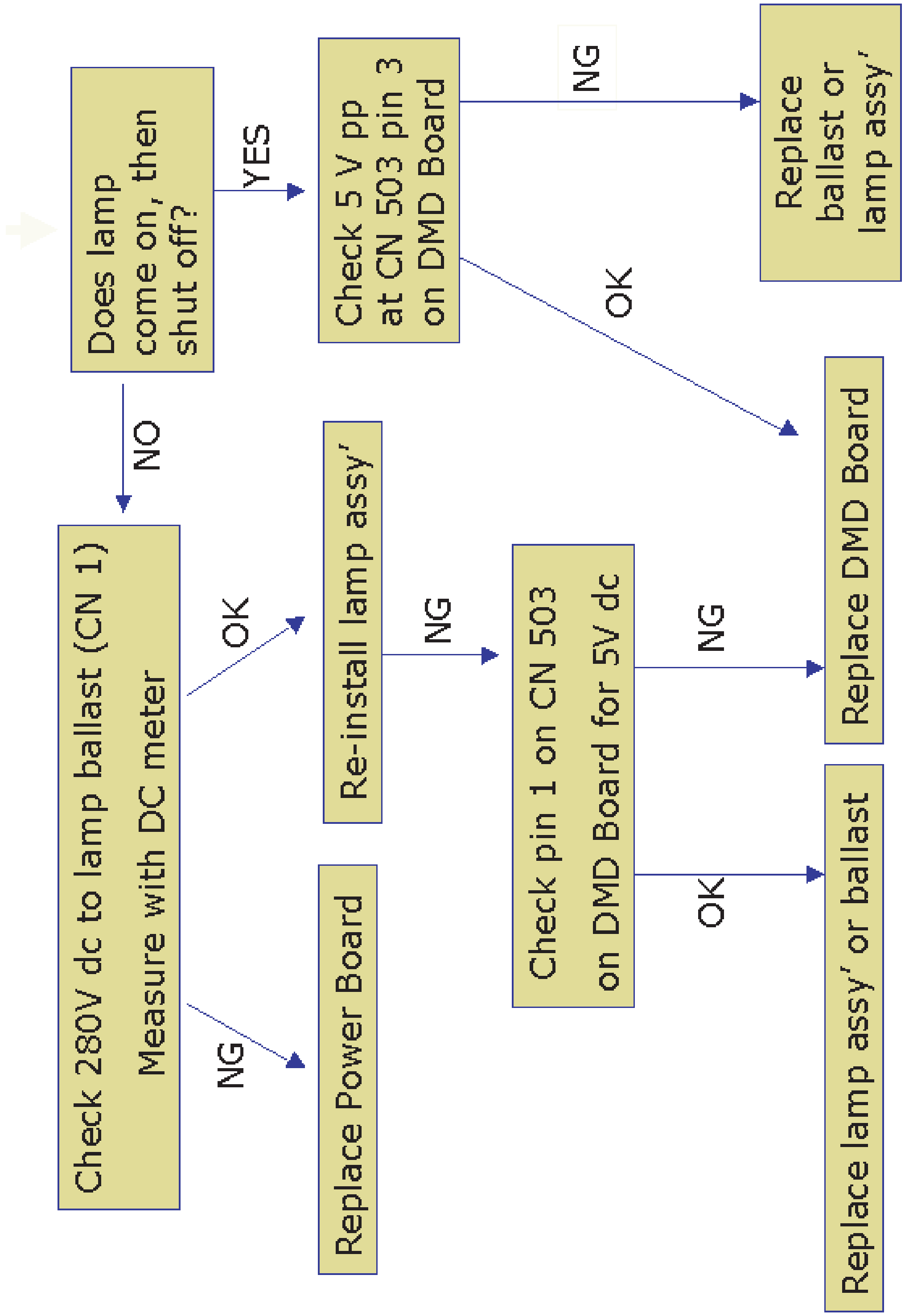
3. Blinking Temp and Timer LED


Are fans running?
Yes
Replace Actuator board
NG
No
Check for 8V DC voltage(s) at CN103, 104 on Actuator Board
OK
Replace fan(s)
NG
Check CN802 pin 8,10 on Power board for 12VB
NG
Replace Power Board
OK
Replace the Analog board

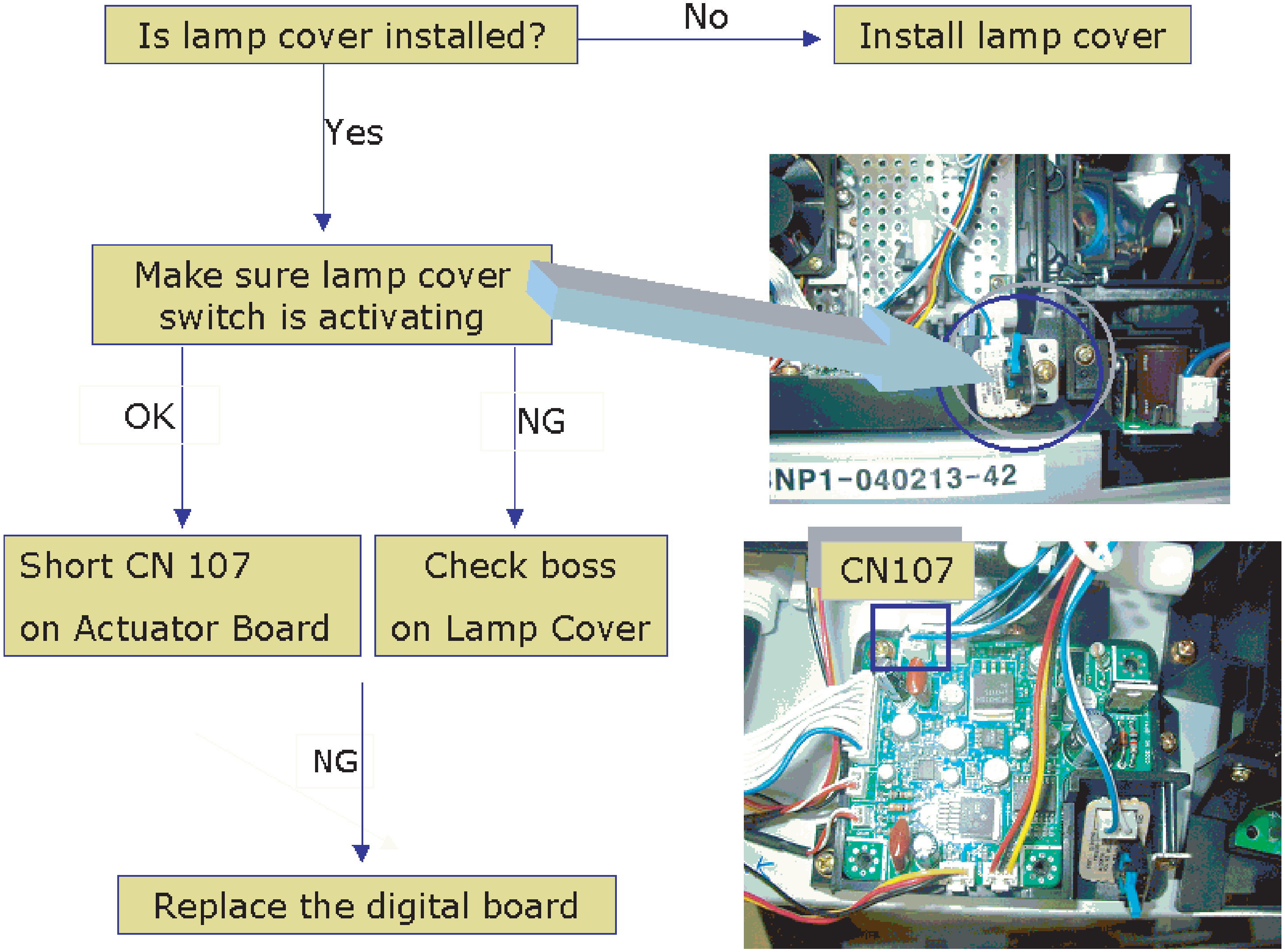
4. Blinking Lamp LED

A blinking lamp LED is the most common failure indication. It can be caused by no lamp, no color wheel, no fan(s), or other defective components.


Do fan(s) run?
YES
Does color wheel run?
NO
YES
Replace color wheel assy'
OK
Is lamp on?
NG
Replace DMD BOARD
YES
Replace DMD Board
NO
See next page


Does lamp come on, then shut off?
YES
Check 5 V pp at CN 503 pin 3 on DMD Board
NG
Replace ballast or lamp assy'
OK
Replace DMD Board
NO
Check 280V dc to lamp ballast (CN 1) Measure with DC meter
OK
Re-install lamp assy'
NG
Replace Power Board
NG
Check pin 1 on CN 503 on DMD Board for 5V dc
NG
OK
Replace lamp assy' or ballast

5. Blinking Lamp, Temp, LED's



Is lamp cover installed?

No

Install lamp cover

Yes

Make sure lamp cover switch is activating

OK

Short CN 107 on Actuator Board

NG

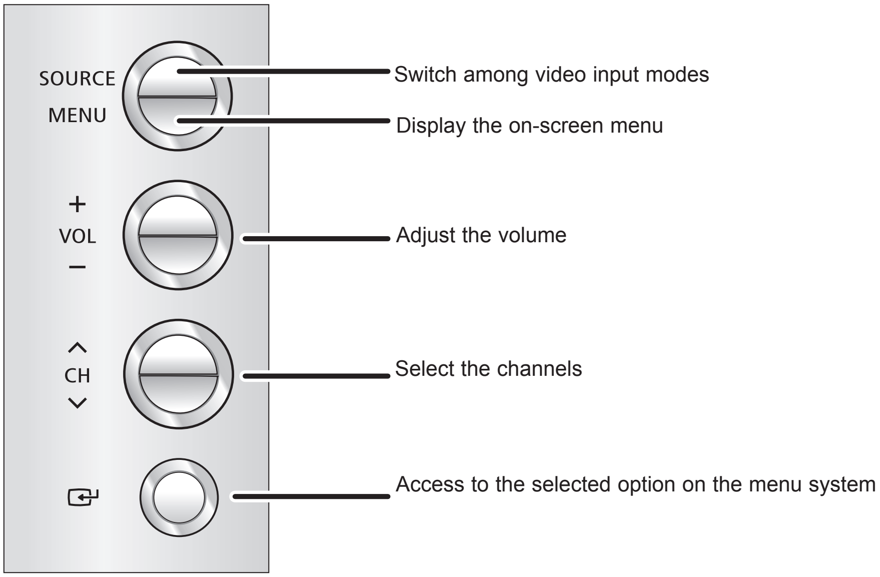
Check boss on Lamp Cover

NG

Replace the digital board

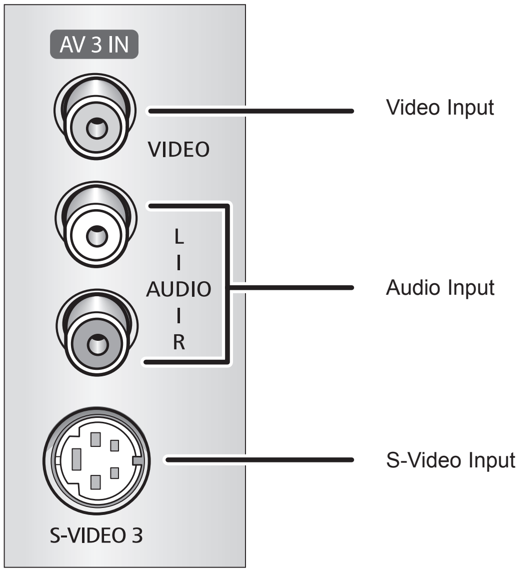
2-8 Side Panel Buttons

The buttons on the side panel control your TV’s basic features, including the on-screen menu system.
To use the more advanced features, you must use the remote control.


SOURCE
MENU
+
VOL
–
^
CH
v
Switch among video input modes
Display the on-screen menu
Adjust the volume
Select the channels
Access to the selected option on the menu system

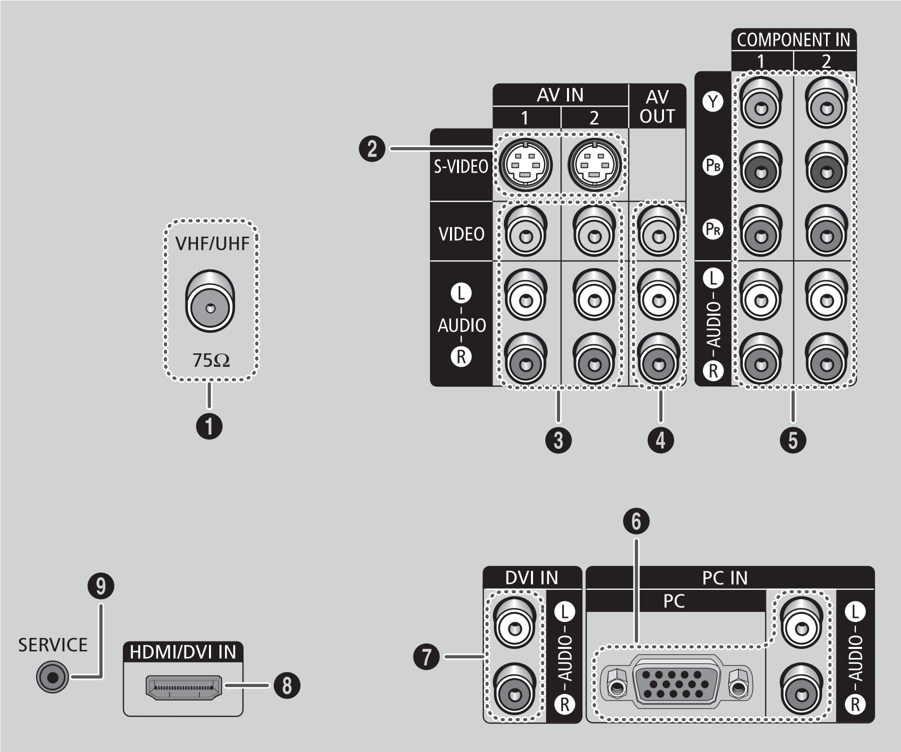
2-9 Side Panel Jacks

Use the side panel jacks to connect a component that is used only occasionally (a camcorder or video game, for example).


AV 3 IN
VIDEO
L
AUDIO
R
S-VIDEO 3
Video Input
Audio Input
S-Video Input

2-10 Rear Panel Jacks

Use the rear panel jacks to connect components such as a VCR. You can connect different components such as VCRs, a Set-Top Box and a DVD player etc., because there are two sets of video input jacks and three set of component video input jacks on the rear panel of your TV. For more information, please see " Connections".


COMPONENT IN
1
2
AV IN
1
2
AV OUT
S-VIDEO
VIDEO
L
AUDIO
R
Y
PB
PR
L
AUDIO
R
VHF/UHF
75Ω
❶
❷
❸
❹
❺
❻
❼
❽
❾
SERVICE
HDMI/DVI IN
DVI IN
L
AUDIO
R
PC IN
PC
L
AUDIO
R

❶ Coaxial connector for aerial or cable network.

❷ S-Video Input
Connect to S-Video output jacks of an S-VHS VCR or DVD player.

❸ Audio/Video Input
Connect to the audio/video output jacks of VCRs, DVD players and similar devices.

❹ Audio/Video Output
Connect to the audio/video input jacks of a recording VCR.

❺ COMPONENT Input
Connect to the audio and video outputs of DVD or DTV Set-Top Box. 480i/480p/1080i Y, P_B and P_R video signal outputs are available.

❻ PC Input
Connect to the PC audio/video outputs.

❼ DVI Audio Input
Connect to the audio output jacks for device with DVI output.

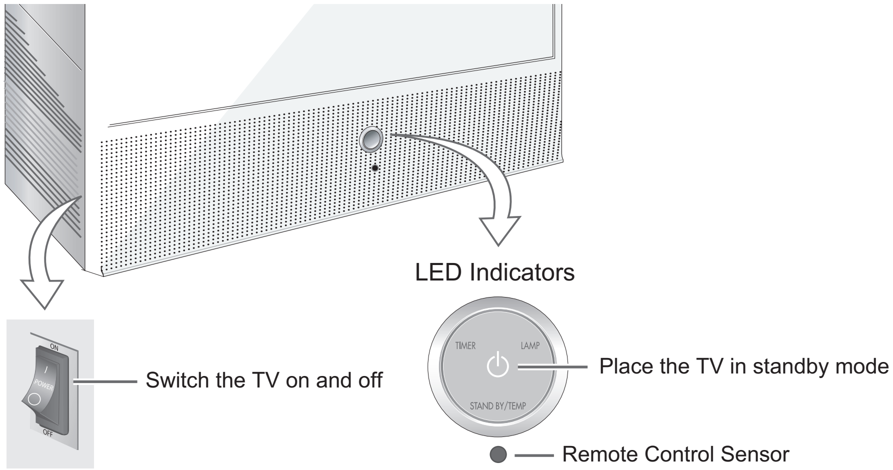
❽ HDMI/DVI Input
Connect to the digital device with HDMI or DVI output.

❾ It is for repairs and software upgrades.

2-11 Front Panel LED Indicators

The three lights on the front panel indicate the status of your TV.

➢ The actual configuration on your TV may be different, depending on your model.



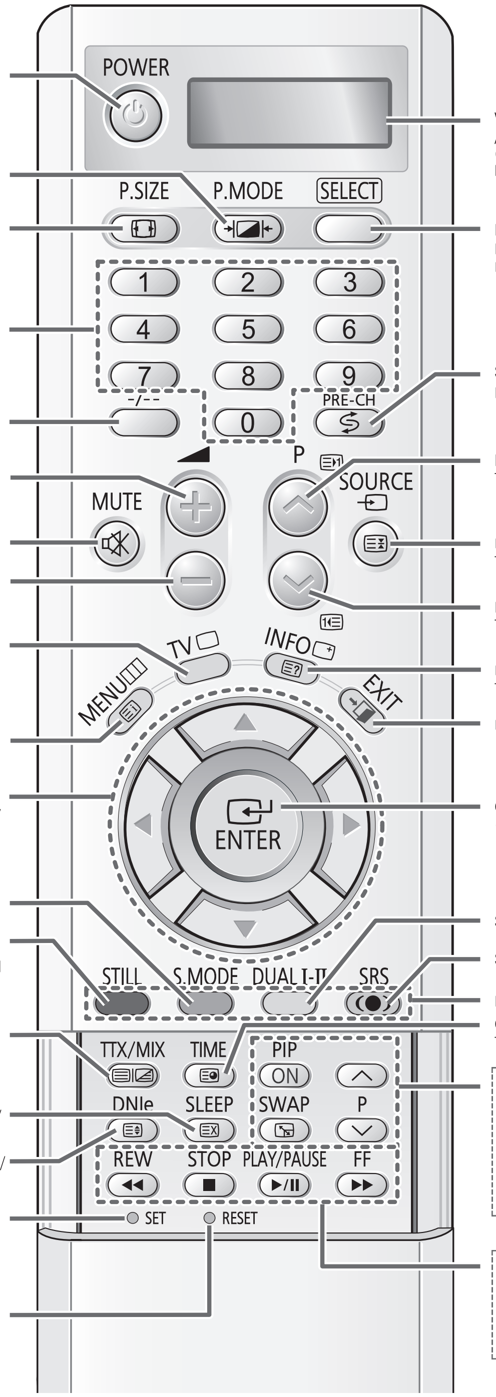
(●:On, ◑:Blinking, ○:Off)

TIMER	LAMP	STAND BY/TEMP	Indication
○	○	●	Standby mode.
●	○	○	A timer pilot lights when Timer Auto On or Off is selected.
○	●	○	Normal operation.
●	●	○	Normal operation (when Timer Auto On or Off is selected).
○	◑	○	Lamp is warming up. The normal picture comes on after 25 seconds.
●	◑	○	The normal picture comes on after 25 seconds. (when Timer Auto On or Off is selected)
○	◑	◑	Air vent cover in the rear of the TV is not properly installed.
○	○	◑	Inside temperature of the TV is over normal. Clean the air vent cover in the rear of the TV. Turn the TV back on after 1 hour.
◑	◑	◑	The lamp does not work, please contact an authorized Service Center for assistance.

➢
- ◆ You can use the channel selection buttons to switch on the TV when it is in standby mode depending on the model.
- ◆ When using the on-screen menu the volume adjustment and channel selection buttons have the same function as the…/† /œ/√ buttons on the remote control.
- ◆ If the remote control no longer works or your have lost it, you can use controls on the panel of the TV.

2-12 Remote Control

You can use the remote control up to about 23 feet from the TV. When using the remote control, always point it directly at the TV. You can also use your remote control to operate your Set-Top box, VCR, Cable box or DVD player.



POWER ON/OFF

PICTURE EFFECT SELECTION

PICTURE SIZE

DIRECT CHANNEL SELECTION

ONE OR TWO-DIGIT CHANNEL SELECTION

VOLUME INCREASE

TEMPORARY SOUND SWITCH-OFF

VOLUME DECREASE

TUNER/CABLE NETWORK SELECTION

MENU DISPLAY/ TELETEXT INDEX

MOVE TO THE REQUIRED MENU OPTION/ ADJUST AN OPTION VALUE RESPECTIVELY

SOUND EFFECT SELECTION

STILL THE MAIN PICTURE

➢ In the PIP mode, the main and sub pictures are stilled at the same time.

TELETEXT DISPLAY/ MIX BOTH TELETEXT INFORMATION AND THE NORMAL BROADCAST

AUTOMATIC SWITCH-OFF/ TELETEXT CANCEL

DNIe ON/DEMO/OFF/ TELETEXT SIZE SELECTION

SET THE MBR CODE OF REMOTE CONTROL FOR THE PRODUCTS EXCEPT SAMSUNG PRODUCT (OPTION)

INITIALIZE THE REMOTE CONTROL SETTINGS WHEN IT HAS SOME PROBLEMS OR DOESN'T WORK WELL

➢ Please remove both batteries before pushing the RESET button. Failure to do so may result in damage to the remote control

WHEN YOU PRESS A BUTTON , ' ᯤ ' APPEARS ALONG WITH SELECTED MODE (TV, VCR, CATV, DVD OR STB) AND REMAINING BATTERIES ON LED

MAKE THE REMOTE CONTROL WORKS FOR TV, VCR, CABLE-BOX (CATV), DVD PLAYER, OR SET-TOP BOX (STB)

SWITCH REPEATEDLY BETWEEN THE LAST TWO CHANNELS DISPLAYED

NEXT CHANNEL/ TELETEXT NEXT PAGE

EXTERNAL INPUT SELECTION/ TELETEXT HOLD

PREVIOUS CHANNEL/ TELETEXT PREVIOUS PAGE

DISPLAY INFORMATION/ TELETEXT REVEAL

EXIT FROM ANY DISPLAY

CONFIRM YOUR CHOICE (STORE OR ENTER)

SOUND MODE SELECTION

SRS TruSurround XT MODE SELECTION

FASTEXT TOPIC SELECTION

CURRENT TIME DISPLAY/ TELETEXT SUBPAGE

PIP FUNCTIONS;
- PIP ACTIVATING OR DEACTIVATING (PIP ON)
- SWAPPING THE MAIN AND THE SUB PICTURE (SWAP)
- SELECTING THE CHANNEL OF SUB PICTURE (P ∧/∨)

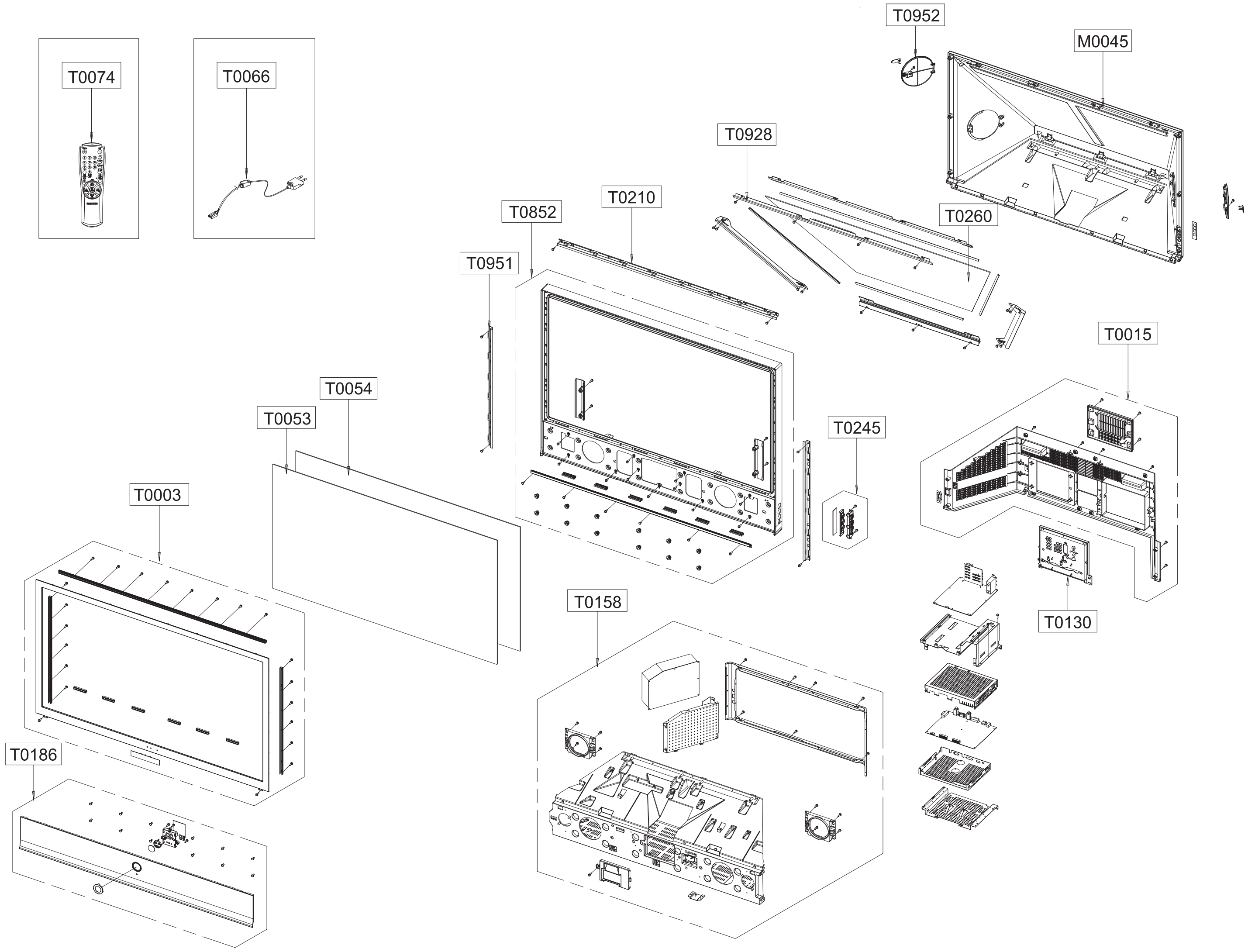
VCR/DVD FUNCTIONS;
- REWIND (REW)
- STOP
- PLAY/PAUSE
- FAST FORWARD (FF)

MEMO

3. Exploded View & Parts List

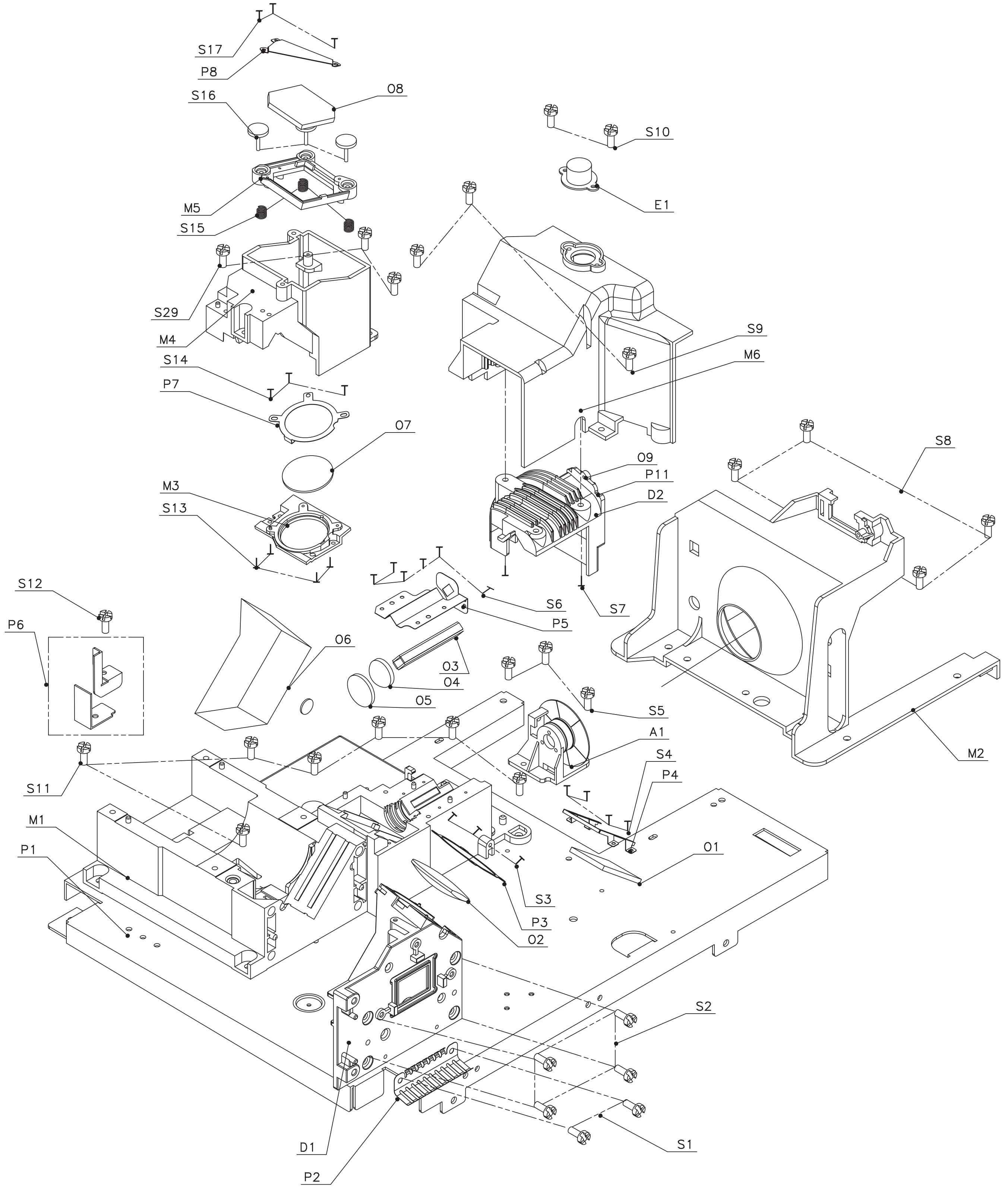
3-1 SP50L3HXX/SAP

You can search for the updated part code through ITSELF web site.
URL : http://itself.sec.samsung.co.kr

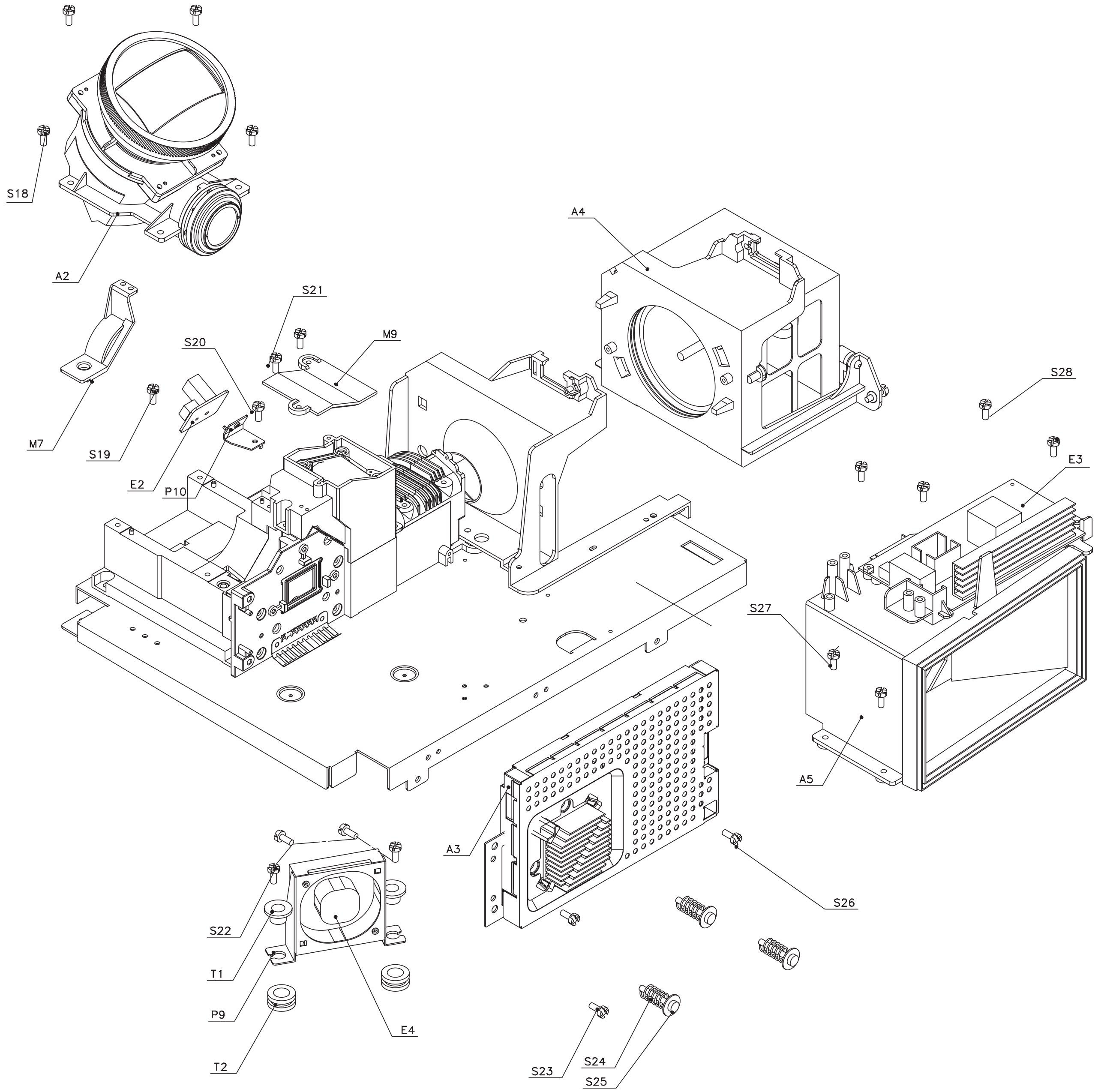


No	Code No	Description;Specification	Q'ty	S.N.A
T0186	BP96-00534F	ASSY COVER P-GRILLE;50L3,HIPS HB,GR503,S	1	S.N.A
T0003	BP96-00532D	ASSY COVER P-FRONT;50L3,HIPS HB,GR503,BK	1	
T0210	BP61-00540A	BRACKET-SCREEN TOP;50L3,SECC,T1.0	1	S.N.A
T0053	BP67-00109A	SCREEN FRESNEL;50W,1126*646,2T	1	
T0054	BP67-00153A	SCREEN LENTI;50W,MS,1126*646,2.1T	1	
T0852	BP96-00531H	ASSY COVER P-MIDDLE;50L3,HIPS HB,GR503,S	1	S.N.A
T0951	BP61-00542A	BRACKET-SCREEN SIDE;50L3,SECC,T1.0	2	S.N.A
T0245	BP94-02140D	ASSY PCB MISC-KEY CONTROL;HLP5063W,L62B,	1	
T0928	BP61-00537A	BRACKET-MIRROR TOP(T);50L3,SECC,T 1.6	1	S.N.A
T0260	BP67-00096A	MIRROR;MIRROR FRONT 50,GLASS,1100X580X5	1	
M0045	BP64-00380A	CABINET BACK-TOP;50L3,HIPS,3.5,HB,GRAY	1	
T0952	BP63-00236A	COVER DUST;50L3,HIPS HB,GRAY	1	S.N.A
T0015	BP64-00379A	CABINET BACK-BOT;50L3,HIPS,3.5,V0,Gray	1	
T0158	BP96-00533C	ASSY COVER P-MAIN;L3,HIPS,V0,GR503	1	
T0130	BP96-00536D	ASSY COVER P-TERMINAL ANT;50L3,HIPS,V0,G	1	S.N.A
T0074	BN59-00378C	REMOCON;ATLANTIS,TM77,55,EX	1	
T0066	AA96-20109C	ASSY POWER CORD;-,CP2/NO(4.0),H/C300,KKP	1	S.N.A

3-2 Exploded View of Engine



	NO.	CODE-NO	CODE-NAME 1	CODE-NAME 2	CODE-NAME 3	Specification	Quantity
50"	50"	BP96-00087A	ASS'Y ENG.-MECHA				
61"	61"		ASS'Y ENG.-MECHA				
A2	A2	BP67-00032A			ASS'Y-P/J LENS		
A4-1	A4-1	BP96-00224A	(43",50")		ASS'Y-LAMP	61": BP96-00224B	
A4-2	A4-2	BP96-00224B	61"				
E1	E1	91-00755A			ASSY-THERMOSTAT	Part:4712-001020	1
A5	A5				DUCT-FAN ASSY	PC+ABS	1
E3-1		AA47-00008A	(43",50")		LAMP-BALLAST-TS	370V,0.33A,100W,150x73mm	
E3-2		BP47-00003A	61"		LAMP-BALLAST-OS	380V,0.4A,135W,150x73mm	
S28	BAL+DUC	6003-000010			SCREW-TAPTITE	BWH,+,B,M3,L10,ZPC(YEL)	4
S27	FAN+DUC	6003-001360			SCREW-TAPTITE	HH,+,B,M4,L12,ZPC(YEL)	2
M6		AA63-00584A			COVER-L/T	PC+GF20%	1
D2		BN62-00006A			H/SINK-C/WHEEL	AL	1
P11		BN61-00218A			CLIP-UV FILTER	SUS t+0.2	1
09		AA64-00094A			GLASS-UV FILTER	GLASS,T1.1,26x26,NTR,AOI+12	
S7	CLT+HSC	6001-00259			SCREW-TAPTITE	BH,+,M3,L8,ZPC(YEL)	3
S9	S/L+CLT	6001-000259			SCREW-TAPTITE	BH,+,M3,L8,ZPC(YEL)	2
A1		BP96-00250A			ASS'Y-C/WHEEL		
M4		AA63-00585A			COVER-CTRL MRR	PC+GF20%	1
P8		AA61-01181A			SPRING-CTRL MIRROR	SUS t0.3	1
P7		AA61-01179A			SPRING-LENS(E3)	SUS T=0.2	1
P4		AA61-01168A			BRKT-MIRROR(E1)	SUS t=0.3	1
M3		AA61-01165A			HOLDER-LENS(E3)	PC+GF20%	1
S15		AA61-01194A			SPRING COIL-CTRL MRR	Purchase	3
M5		AA61-01163A			HOLDER-CTRL MRR	PC+GF20%	1
M9		AA63-00583A			COVER-CONTROL CAP	ABS VO	1
E2					ASSY-I/R		1
P10		AA61-01172A			BRACKET-RMC	SECC T=1.0	1
07		BN67-00063A			LENS-ILL-E3	PI=31,R1=0,R2=23.2(ASP),B270,T=6.5	1
08		BN67-00060A			MIRROR-ILL-M2	GLASS,39x36,NTR,T3,FRONT COATING	1
S29	ACM+B/E	6003-000259			SCREW-TAPTITE	BH,+,B,M3,L8,ZPC(YEL)	3
S14	S/L+H/L	6003-000257			SCREW-TAPTITE	PH,+M2,L6,ZPC(YEL),SM20C	3
S19	P/R+B/R	6003-000259			SCREW-TAPTITE	BH,+B,M3,L8,ZPC(YEL)	1
S20	B/R+C/M	6003-000259			SCREW-TAPTITE	BH,+B,M3,L8,ZPC(YEL)	1
S16	CCM+HCM	6001-000768			SCREW-TAPTITE	BH,+,M2,L12,ZPC(YEL),SM20C	3
S21	CCC+CCM	6003-000259			SCREW-TAPTITE	BH,+,B,M3,L8,ZPC(YEL)	2
S13	CCM+H/L						
S17	SCM+HCM	6003-000257			SCREW-TAPTITE	PH,+,M2,L6,ZPC(YEL),SM20C	3
D1		AA61-01164A			HOLDER-PANEL	AL	1
P3		AA61-01166A			BRKT-LENS(E4)	SUS	1



T3		AA60-00150A			SPACER RUBBER-PRISM	RUBBER	2
2		BN67-00064A			LENS-ILL-E4	PI=42,R1=98,281,R2=54,766,BSC7,T=8	
S3	B/L+H/P	6001-000871			SCREW-MACHINE	BH,+,M2,L6,ZPC(YEL),SWRCH10R	4
A3		BP96-00249A			ASS'Y-DMD PANEL		
S24		AA61-01195A			SPRING COIL-DMD		3
S25	D/P+AHP	6001-000942			SCREW-MACHINE	PH,+,M3,L30,ZPC(YEL),SWRCH10A	3
P1		AA61-01169A			BRKT-ENGINE BOTTOM	SECC t=1.6	1
M1		AA61-01182A			BASE-ENGINE	PC+GF30%	1
P5		AA61-01178A			SPRING-L/T	SUS T+0.2	1
M7		AA63-00582A			COVER-DUST	ABS VO	1
P6		BP63-00018A			SHIELD-OFF LIGHT	SECC t=1.0	1
P9		MD60-00003			SPACER-RUBBER		1
E4		BP31-00002A			SUB FAN	60x60x15	1
		BP60-00013A			SPACER DUST COVER	SPONGE PE FOAM BLK VO	1
		BP60-00013B			SPACER DUST COVER	SPONGE PE FOAM BLK VO	1
		BN63-00420A			COVER DUST-ENGINE	PC+ABS	1
		BN65-00001A			CLAMP-CORE	NYLON 66 DAQC105	2
		BP60-00013B			SPACER-DUST COVER	SPONGE PE FOAM VO BLK(280mm)	1
		AA65-30105C			CLAMP WIRE	NYLON 66	1
		AA61-00097A			HOLDER-WIRE	NYLON 66	1
		AA65-30010B			CLAMP-WIRE	NYLON 66	1
		AA61-20129B			HOLDER-WIRE CLAMP	NYLON 66	1
3		BN67-00058A			MIRROR-LIGHT TUNNEL		1
5		BN67-00061A			LENS-ILL-E2		1
4		BN67-00062A			LENS-ILL-E1		1
1		BN67-00059A			MIRROR-ILL-M1	GLASS,41x28,NTR,T3,FRONT COATING	1
6		BN64-00093A			GLASS-TIR PRISM	BSC7,T36,53,45x38,NTR	1
S11	E/B+BBE	6001-001627			SCREW-MACHINE	PWH,+,M4,L12,ZPC(YEL),SWRCH18A,FP	7
S18	HLB+BBE	6001-001627			SCREW-MACHINE	PWH,+,M4,L12,ZPC(YEL),SWRCH18A,FP	4
S6	SLT+B/E	6003-000257			SCREW-TAPTITE	PH,+,M2,L6,ZPC(YEL),SM20C	5
S22	FAN+BSF	6003-000279			SCREW-TAPTITE	BH,+,M3,B,L20,ZPC(YEL)	2
S22	BSF+BBE	6003-000279			SCREW-TAPTITE	BH,+,M3,B,L20,ZPC(YEL)	2
S26	BOL+B/E	6003-000259			SCREW-TAPTITE	BH,+,B,M3,L8,ZPC(YEL)	1
S5	ACW+B/E	6003-000259			SCREW-TAPTITE	BH,+,B,M3,L8,ZPC(YEL)	3
S29	ACC+B/E				SCREW-TAPTITE	BH,+,B,M3,L8,ZPC(YEL)	3

< 50” : 61” Optical materials >

50" DLP			61" DLP		
MAKER	DESCRIPTION	CODE NO	MAKER	DESCRIPTION	CODE NO
HTL	LAMP-MERCURY-TS	AA47-00007A	OSRAM	LAMP-MERCURY-OS	BP47-00002A
HTL	LAMP-BALLAST-TS	AA47-00008A	OSRAM	LAMP-BALLAST-OS	BP47-00003A
OCLI	50"W MIRROR-FRONT	BP67-00033A	OCLI	61"W MIRROR-FRONT	BP67-00035A
TOPPAN	50" LENTI	AA67-00169A	TOPPAN	61" LENTI	BP64-00099A
TOPPAN	50" FRESNEL	AA67-00172A	TOPPAN	61" FRESNEL	BP64-00098A

4. Service Item

4-1. SP50L3HXX/SAP

You can search for the updated part code through ITSELF web site.
URL : http://itself.sec.samsung.co.kr

Loc.	Code No	Description;Specification	Q'ty	S.N.A
D0254	AA32-00012A	MODULE REMOCON;ORC-50HF2,38KHZ,940NM,MES	1	
T0066	AA96-20109C	ASSY POWER CORD;-,CP2/NO(4.0),H/C300,KKP	1	S.N.A
TU203S	AA40-00130A	TUNER;TMQZ2-401A,PAL-CS,PAL Hyper,38.9MH	1	
TU201S	AA40-00132A	TUNER;TMQZ2-410A,PAL-CS,PAL Hyper,38.9MH	1	
M0125	BP39-00106C	CBF SIGNAL-DVI(D);HLP5063WX,24P/24P,2027	1	
T0015	BP64-00379A	CABINET BACK-BOT;50L3,HIPS,3.5,V0,Gray	1	
M0045	BP64-00380A	CABINET BACK-TOP;50L3,HIPS,3.5,HB,GRAY	1	
T0054	BP67-00153A	SCREEN LENTI;50W,MS,1126*646,2.1T	1	
T0053	BP67-00109A	SCREEN FRESNEL;50W,1126*646,2T	1	
T0027	BP94-00484A	ASSY PCB S-DMD;HLP5063WX/XAA,L62B,ATLANT	1	S.N.A
T0269	BP94-00485A	ASSY PCB S-ACTUATOR/SUB DETECT;HLP5063WX	1	
T0091	BP94-02140C	ASSY PCB MISC-SIDE AV;HLP5063W,L62B,ATLA	1	
T0245	BP94-02140D	ASSY PCB MISC-KEY CONTROL;HLP5063W,L62B,	1	
T0268	BP94-02140G	ASSY PCB MISC-RMC LED;HLP5063W,L62B,ATLA	1	
T0120	BP94-02141E	ASSY PCB POWER;SP46L3HR,M62A,ATLANTIS,AC	1	
T0753	BP94-02149K	ASSY PCB S-ACTUATOR;DP,BP41-00121A,L62B,	1	
T0132	BP94-02186A	ASSY PCB MISC-DIGITAL;SP46L3HX/SP50L3HX,	1	
T0145	BP94-02153A	ASSY PCB MISC-ANALOG;SP46L3HR,M62A,ATLAN	1	
T0129	BP96-00564A	ASSY ENGINE P-DLP PLL3;L3(AIR),PHILIPS E	1	
T0131	BP96-00568C	ASSY COVER P-BACK BOT;50L3,HIPS,V0,GRY	1	
T0003	BP96-00532D	ASSY COVER P-FRONT;50L3,HIPS HB,GR503,BK	1	

MEMO

5. Block Diagram

5-1 Analog Board PCB Layout

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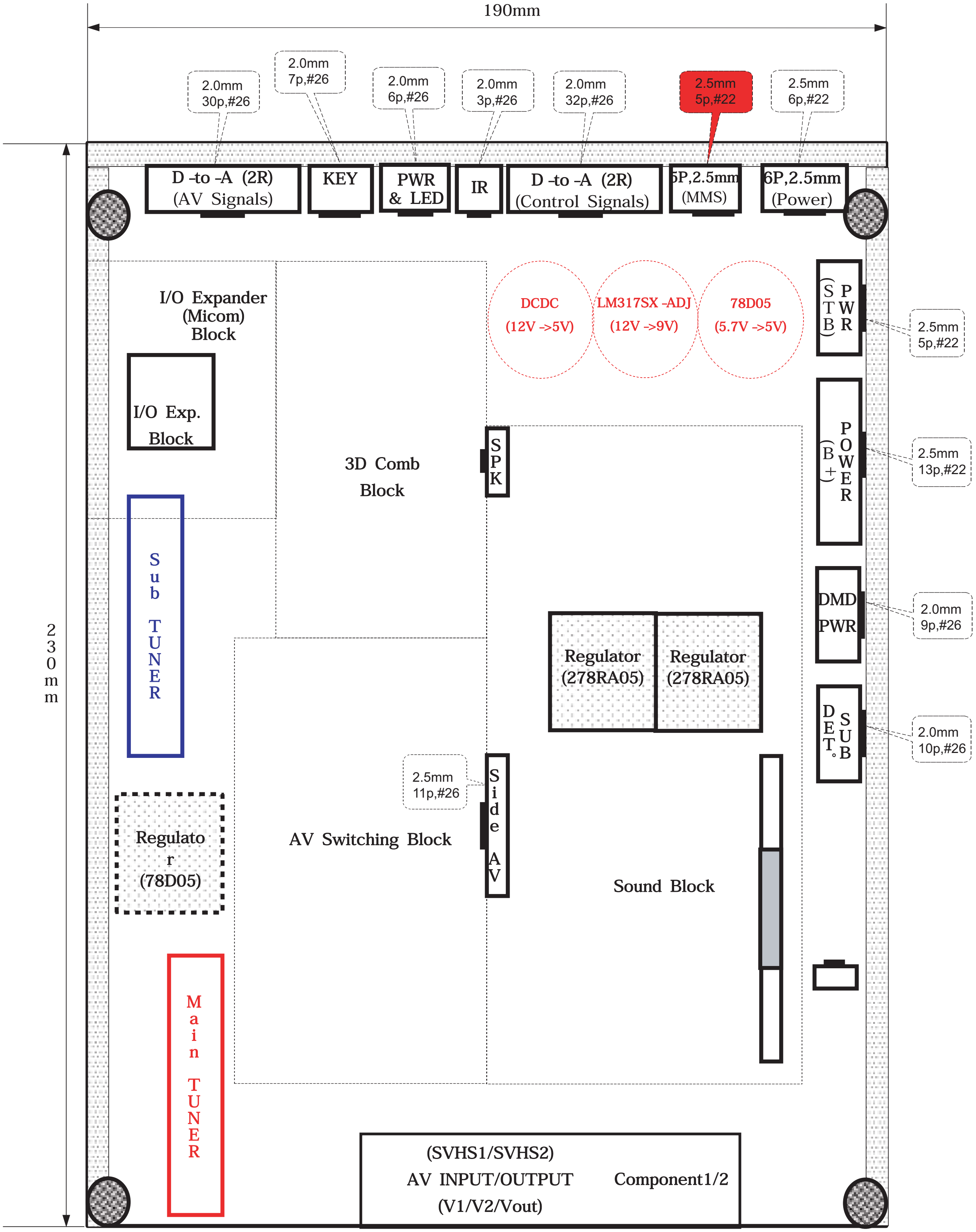
190mm
230mm
2.0mm 30p,#26
2.0mm 7p,#26
2.0mm 6p,#26
2.0mm 3p,#26
2.0mm 32p,#26
2.5mm 5p,#22
2.5mm 6p,#22
D-to-A (2R) (AV Signals)
KEY
PWR & LED
IR
D-to-A (2R) (Control Signals)
5P,2.5mm (MMS)
6P,2.5mm (Power)
I/O Expander (Micom) Block
I/O Exp. Block
3D Comb Block
DCDC (12V->5V)
LM317SX-ADJ (12V->9V)
78D05 (5.7V->5V)
STB PWR
2.5mm 5p,#22
B+ POWER
2.5mm 13p,#22
SPK
Sub TUNER
DMD PWR
2.0mm 9p,#26
Regulator (278RA05)
Regulator (278RA05)
DET. SUB
2.0mm 10p,#26
2.5mm 11p,#26
Side AV
Regulator (78D05)
AV Switching Block
Sound Block
Main TUNER
(SVHS1/SVHS2)
AV INPUT/OUTPUT
(V1/V2/Vout)
Component1/2

5-2 Digital Board Block Diagram

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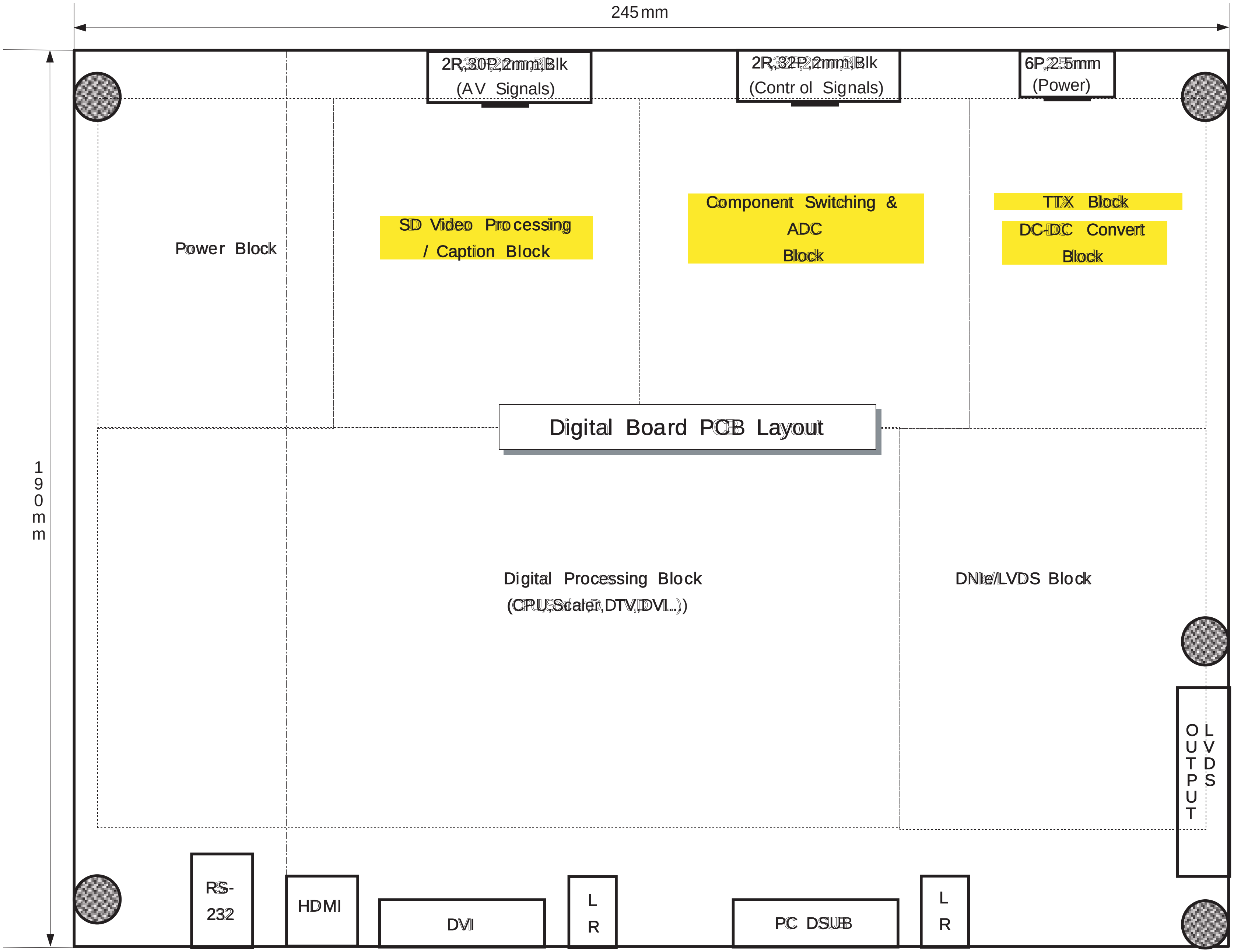
245 mm
190 mm
2R,30P,2mm,Blk
(AV Signals)
2R,32P,2mm,Blk
(Control Signals)
6P,2.5mm
(Power)
Power Block
SD Video Processing
/ Caption Block
Component Switching &
ADC
Block
TTX Block
DC-DC Convert
Block
Digital Board PCB Layout
Digital Processing Block
(CPU,Scaler,DTV,DVI..)
DNIe/LVDS Block
LVDS
OUTPUT
RS-232
HDMI
DVI
L
R
PC DSUB
L
R

5-3 AV Switching (TEA64XX) Block

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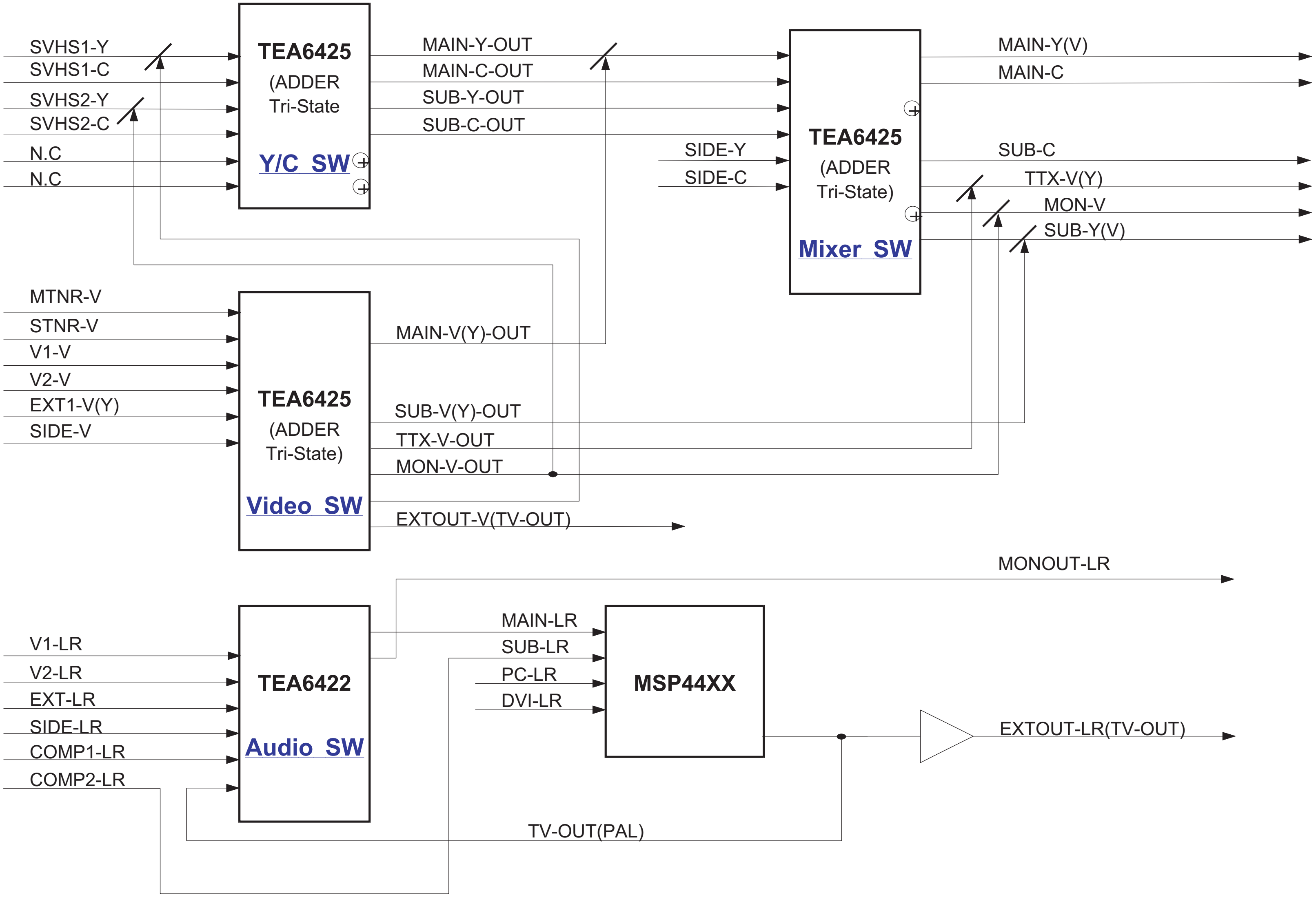
SVHS1-Y
SVHS1-C
SVHS2-Y
SVHS2-C
N.C
N.C
TEA6425
(ADDER
Tri-State
Y/C SW
MAIN-Y-OUT
MAIN-C-OUT
SUB-Y-OUT
SUB-C-OUT
SIDE-Y
SIDE-C
TEA6425
(ADDER
Tri-State)
Mixer SW
MAIN-Y(V)
MAIN-C
SUB-C
TTX-V(Y)
MON-V
SUB-Y(V)
MTNR-V
STNR-V
V1-V
V2-V
EXT1-V(Y)
SIDE-V
TEA6425
(ADDER
Tri-State)
Video SW
MAIN-V(Y)-OUT
SUB-V(Y)-OUT
TTX-V-OUT
MON-V-OUT
EXTOUT-V(TV-OUT)
MONOUT-LR
V1-LR
V2-LR
EXT-LR
SIDE-LR
COMP1-LR
COMP2-LR
TEA6422
Audio SW
MAIN-LR
SUB-LR
PC-LR
DVI-LR
MSP44XX
EXTOUT-LR(TV-OUT)
TV-OUT(PAL)

MEMO

6. Schematic Diagrams

6-1 ANALOG

6-1-1 Power Regulator

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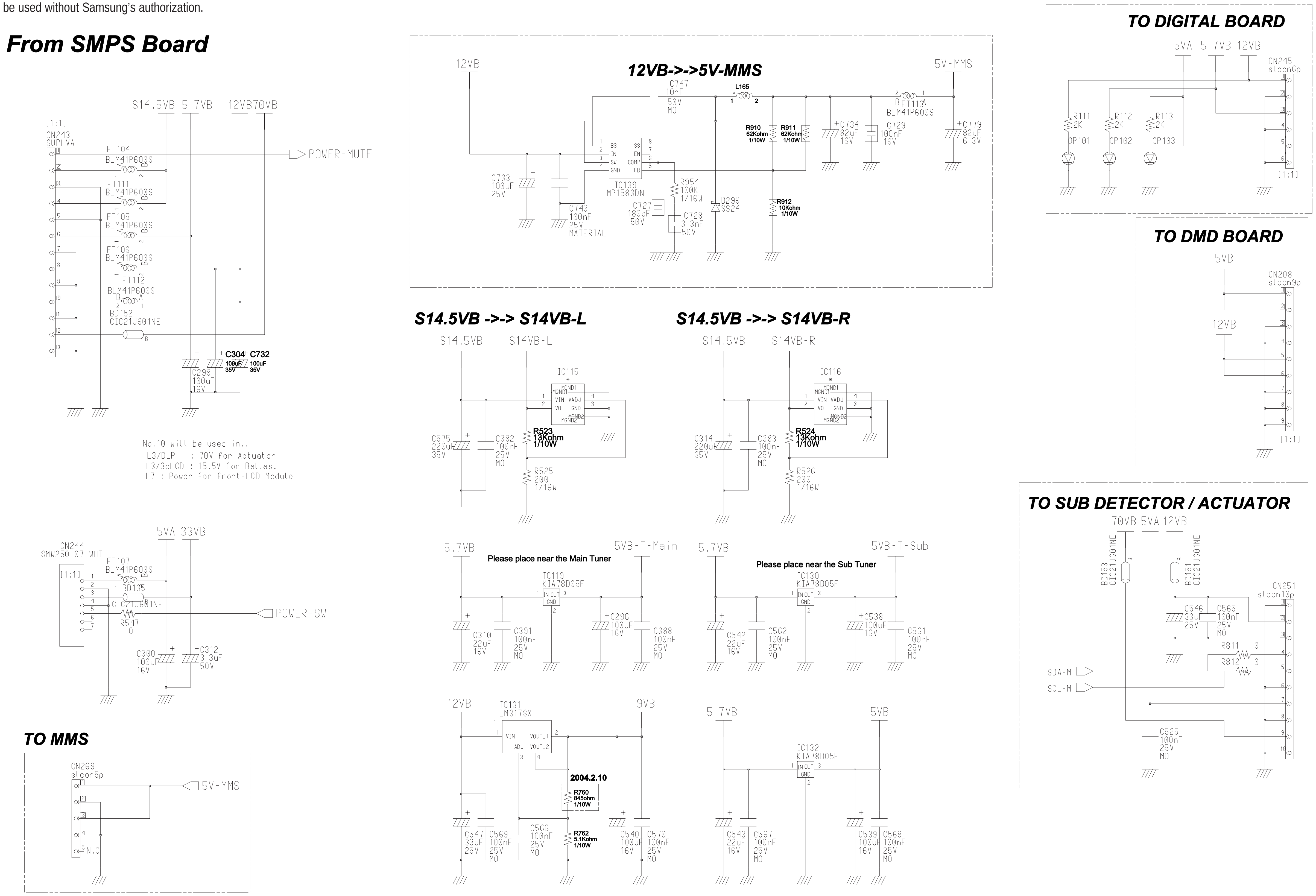
From SMPS Board
S14.5VB 5.7VB 12VB 70VB
CN243
SUPLVAL
FT104 BLM41P600S
FT111 BLM41P600S
FT105 BLM41P600S
FT106 BLM41P600S
FT112 BLM41P600S
BD152 CIC21J601NE
POWER-MUTE
C298 100uF 16V
C304 100uF 35V
C732 100uF 35V
No.10 will be used in..
L3/DLP : 70V for Actuator
L3/3pLCD : 15.5V for Ballast
L7 : Power for front-LCD Module
5VA 33VB
CN244 SMW250-07 WHT
FT107 BLM41P600S
BD135 CIC21J601NE
R547 0
POWER-SW
C300 100uF 16V
C312 3.3uF 50V
TO MMS
CN269 slcon5p
5V-MMS
N.C
12VB->>5V-MMS
12VB
5V-MMS
C747 10nF 50V MO
L165
IC139 MP1583DN
C733 100uF 25V
C743 100nF 25V MATERIAL
C727 180pF 50V
R954 100K 1/16W
C728 3.3nF 50V
D296 SS24
R910 62Kohm 1/10W
R911 62Kohm 1/10W
R912 10Kohm 1/10W
C734 82uF 16V
C729 100nF 16V
FT113 BLM41P600S
C779 82uF 6.3V
S14.5VB ->> S14VB-L
IC115
C575 220uF 35V
C382 100nF 25V MO
R523 13Kohm 1/10W
R525 200 1/16W
S14.5VB ->> S14VB-R
IC116
C314 220uF 35V
C383 100nF 25V MO
R524 13Kohm 1/10W
R526 200 1/16W
5.7VB
5VB-T-Main
Please place near the Main Tuner
IC119 KIA78D05F
C310 22uF 16V
C391 100nF 25V MO
C296 100uF 16V
C388 100nF 25V MO
5VB-T-Sub
Please place near the Sub Tuner
IC130 KIA78D05F
C542 22uF 16V
C562 100nF 25V MO
C538 100uF 16V
C561 100nF 25V MO
12VB
9VB
IC131 LM317SX
2004.2.10
R760 845ohm 1/10W
R762 5.1Kohm 1/10W
C547 33uF 25V
C569 100nF 25V MO
C566 100nF 25V MO
C540 100uF 16V
C570 100nF 25V MO
5VB
IC132 KIA78D05F
C543 22uF 16V
C567 100nF 25V MO
C539 100uF 16V
C568 100nF 25V MO
TO DIGITAL BOARD
5VA 5.7VB 12VB
CN245 slcon6p
R111 2K
R112 2K
R113 2K
OP101
OP102
OP103
TO DMD BOARD
5VB
12VB
CN208 slcon9p
TO SUB DETECTOR / ACTUATOR
70VB 5VA 12VB
BD153 CIC21J601NE
BD151 CIC21J601NE
CN251 slcon10p
C546 33uF 25V
C565 100nF 25V MO
R811 0
R812 0
SDA-M
SCL-M
C525 100nF 25V MO

6-1-2 Tuner Splitter & Side AV

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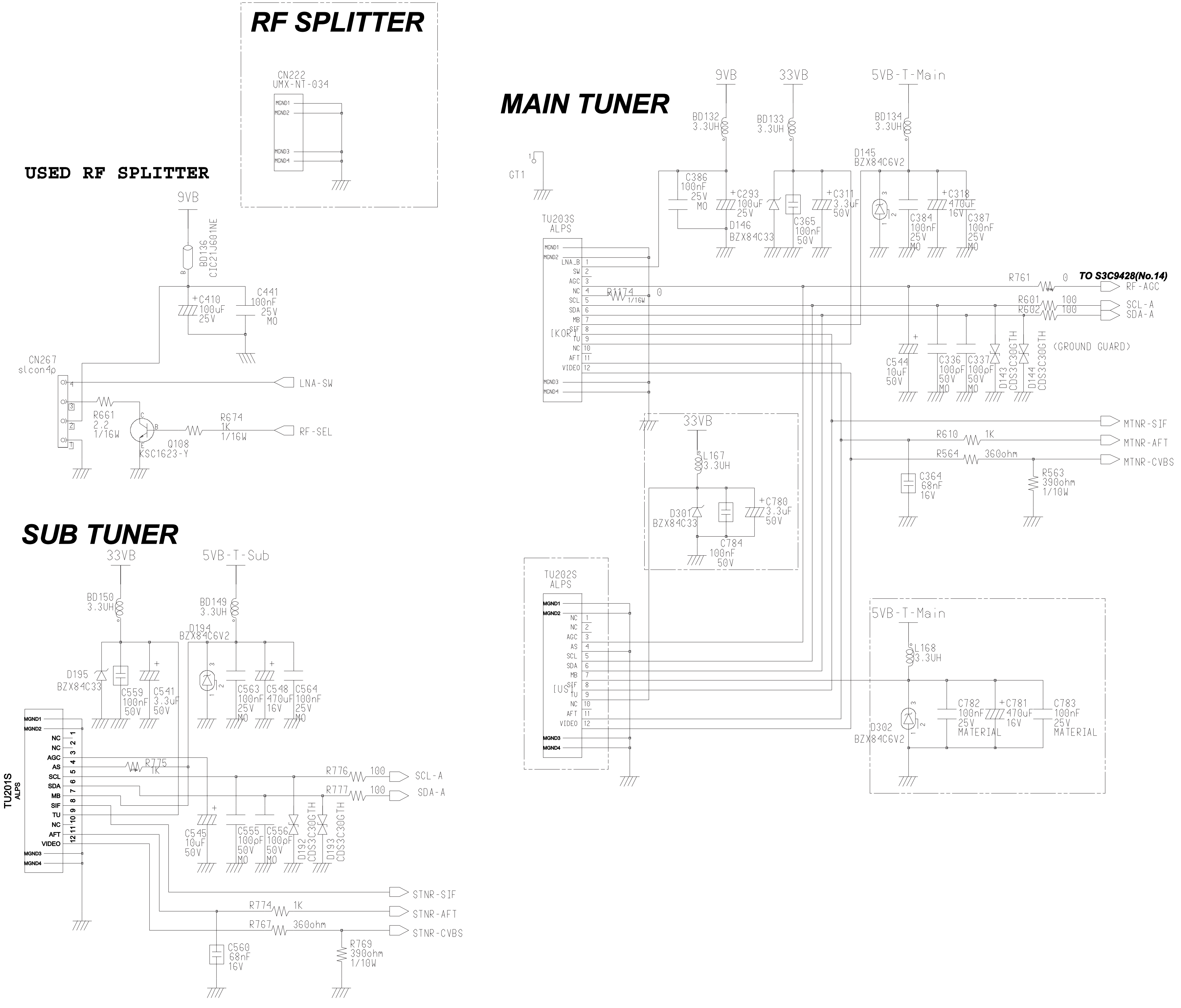

RF SPLITTER
CN222
UMX-NT-034
MGND1
MGND2
MGND3
MGND4
USED RF SPLITTER
9VB
BD136
CIC21J601NE
C410
100uF
25V
C441
100nF
25V
MO
CN267
slcon4p
LNA-SW
R661
2.2
1/16W
Q108
KSC1623-Y
R674
1K
1/16W
RF-SEL
MAIN TUNER
9VB
33VB
5VB-T-Main
BD132
3.3UH
BD133
3.3UH
BD134
3.3UH
D145
BZX84C6V2
GT1
C386
100nF
25V
MO
C293
100uF
25V
D146
BZX84C33
C311
3.3uF
50V
C365
100nF
50V
C318
470uF
16V
C384
100nF
25V
MO
C387
100nF
25V
MO
TU203S
ALPS
LNA_B
SW
AGC
NC
SCL
SDA
MB
SIF
TU
NC
AFT
VIDEO
[KOR]
R1174
0
1/16W
R761
0
TO S3C9428(No.14)
RF-AGC
R601
100
R602
100
SCL-A
SDA-A
C544
10uF
50V
C336
100pF
50V
MO
C337
100pF
50V
MO
D143
CDS3C30GTH
D144
CDS3C30GTH
(GROUND GUARD)
33VB
L167
3.3UH
D301
BZX84C33
C780
3.3uF
50V
C784
100nF
50V
MTNR-SIF
R610
1K
MTNR-AFT
R564
360ohm
MTNR-CVBS
C364
68nF
16V
R563
390ohm
1/10W
TU202S
ALPS
[US]
5VB-T-Main
L168
3.3UH
C782
100nF
25V
MATERIAL
C781
470uF
16V
C783
100nF
25V
MATERIAL
D302
BZX84C6V2
SUB TUNER
33VB
5VB-T-Sub
BD150
3.3UH
BD149
3.3UH
D194
BZX84C6V2
D195
BZX84C33
C559
100nF
50V
C541
3.3uF
50V
C563
100nF
25V
MO
C548
470uF
16V
C564
100nF
25V
MO
TU201S
ALPS
R775
1K
R776
100
SCL-A
R777
100
SDA-A
C545
10uF
50V
C555
100pF
50V
MO
C556
100pF
50V
MO
D192
CDS3C30GTH
D193
CDS3C30GTH
STNR-SIF
R774
1K
STNR-AFT
R767
360ohm
STNR-CVBS
C560
68nF
16V
R769
390ohm
1/10W

NTSC/PAL OPTION

Use C544/C545 as follows..

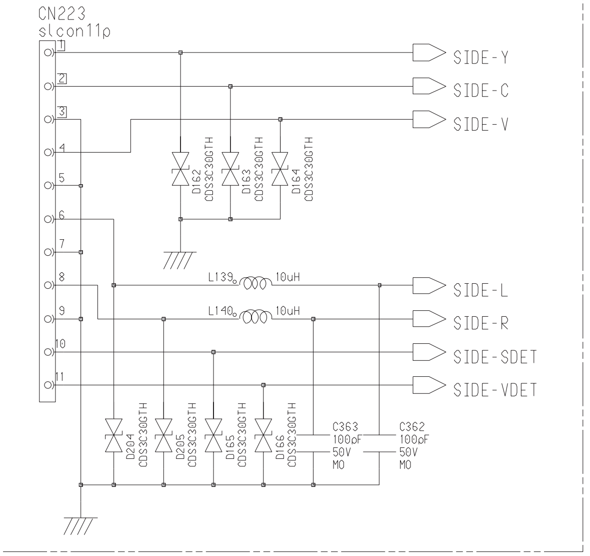
NTSC : 2402-000120, 10uF/50V
PAL : 2402-001042, 100uF/16V

Use the Tuners as follows...

	(MAIN) TU203	(MAIN) TU202	(SUB) TU201
NTSC/US	X	AA40-00122A	AA40-00122A
NTSC/KOR	AA40-00123A	X	AA40-00122A
PAL/EUROPE	AA40-00127A	X	AA40-00129A
PAL/ASIA	AA40-00130A	X	AA40-00132A

In NTSC/US.. Use additional CN222(Splitter)

From SIDE-AV Board


CN223
slcon11p
SIDE-Y
SIDE-C
SIDE-V
D162
D163
D164
CDS3C30GTH
L139
10uH
L140
10uH
SIDE-L
SIDE-R
SIDE-SDET
SIDE-VDET
D204
D205
D165
D166
CDS3C30GTH
C363
100pF
50V
MO
C362
100pF
50V
MO

6-1-3 AV IN_OUT

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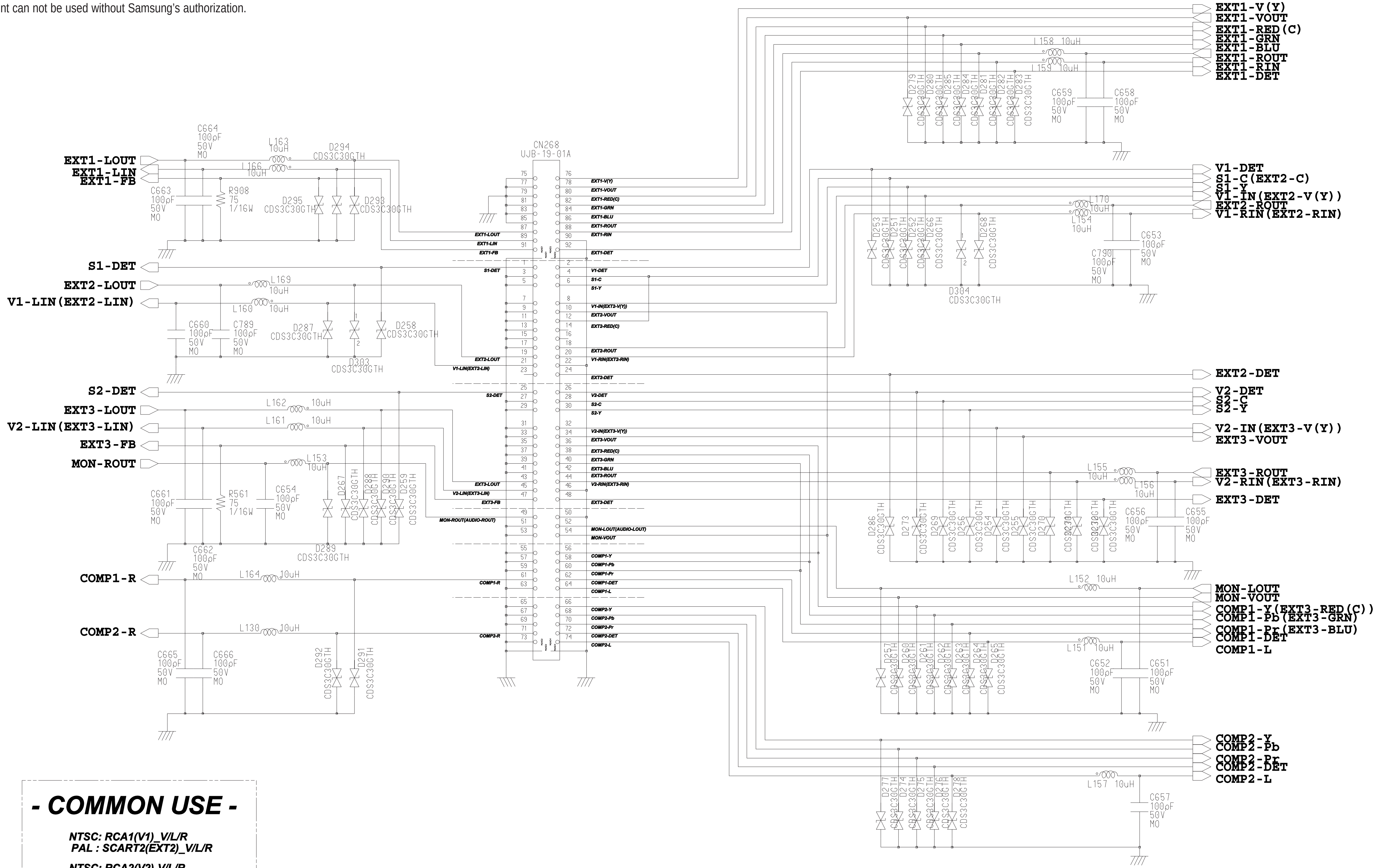
EXT1-V(Y)
EXT1-VOUT
EXT1-RED(C)
EXT1-GRN
EXT1-BLU
EXT1-ROUT
EXT1-RIN
EXT1-DET
V1-DET
S1-C(EXT2-C)
S1-Y
V1-IN(EXT2-V(Y))
EXT2-ROUT
V1-RIN(EXT2-RIN)
EXT2-DET
V2-DET
S2-C
S2-Y
V2-IN(EXT3-V(Y))
EXT3-VOUT
EXT3-ROUT
V2-RIN(EXT3-RIN)
EXT3-DET
MON-LOUT
MON-VOUT
COMP1-Y(EXT3-RED(C))
COMP1-Pb(EXT3-GRN)
COMP1-Pr(EXT3-BLU)
COMP1-DET
COMP1-L
COMP2-Y
COMP2-Pb
COMP2-Pr
COMP2-DET
COMP2-L
EXT1-LOUT
EXT1-LIN
EXT1-FB
S1-DET
EXT2-LOUT
V1-LIN(EXT2-LIN)
S2-DET
EXT3-LOUT
V2-LIN(EXT3-LIN)
EXT3-FB
MON-ROUT
COMP1-R
COMP2-R
CN268
UJB-19-01A
L158 10uH
L159 10uH
C659 100pF 50V MO
C658 100pF 50V MO
D279
D280
D285
D284
D281
D282
D283
CDS3C30GTH
C664 100pF 50V MO
L163 10uH
L166 10uH
D294 CDS3C30GTH
C663 100pF 50V MO
R908 75 1/16W
D295 CDS3C30GTH
D293 CDS3C30GTH
L170 10uH
L154 10uH
C653 100pF 50V MO
C790 100pF 50V MO
D253
D251
D252
D266
D268
D304 CDS3C30GTH
L169 10uH
L160 10uH
C660 100pF 50V MO
C789 100pF 50V MO
D287 CDS3C30GTH
D258 CDS3C30GTH
D303 CDS3C30GTH
L162 10uH
L161 10uH
L153 10uH
C661 100pF 50V MO
R561 75 1/16W
C654 100pF 50V MO
D267
D288
D290
D259
C662 100pF 50V MO
D289 CDS3C30GTH
L164 10uH
L130 10uH
C665 100pF 50V MO
C666 100pF 50V MO
D292 CDS3C30GTH
D291 CDS3C30GTH
L155 10uH
L156 10uH
D286
D273
D269
D256
D254
D255
D270
D271
D272
C656 100pF 50V MO
C655 100pF 50V MO
L152 10uH
L151 10uH
D257
D260
D261
D262
D263
D264
D265
C652 100pF 50V MO
C651 100pF 50V MO
L157 10uH
D277
D274
D275
D276
D278
C657 100pF 50V MO

- COMMON USE -

NTSC: RCA1(V1)_V/L/R
PAL : SCART2(EXT2)_V/L/R

NTSC: RCA2(V2)-V/L/R
PAL : SCART3(EXT3)-V/L/R

NTSC: MONITOR-OUT_V/L/R
PAL : SCART2_(EXT2)-OUT_V/L/R

6-1-4 AV Switching_Video

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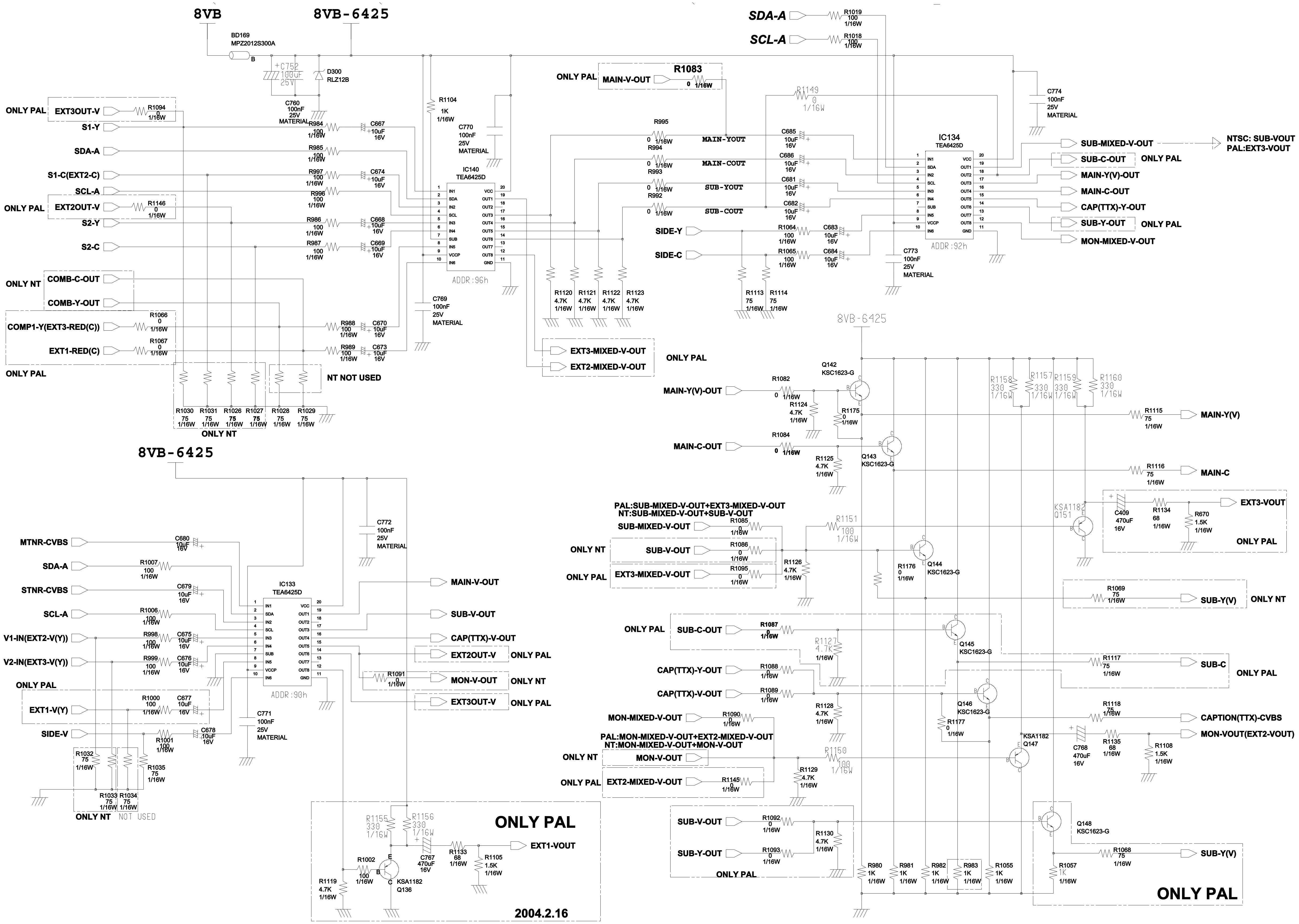
8VB
8VB-6425
BD169
MPZ2012S300A
C752
100uF
25V
D300
RLZ12B
C760
100nF
25V
MATERIAL
R1104
1K
1/16W
C770
100nF
25V
MATERIAL
IC140
TEA6425D
ADDR:96h
C769
100nF
25V
MATERIAL
ONLY PAL
EXT3OUT-V
R1094
S1-Y
SDA-A
S1-C(EXT2-C)
SCL-A
EXT2OUT-V
R1146
S2-Y
S2-C
ONLY NT
COMB-C-OUT
COMB-Y-OUT
COMP1-Y(EXT3-RED(C))
R1066
EXT1-RED(C)
R1067
R984
R985
R997
R996
R986
R987
R988
R989
C667
C674
C668
C669
C670
C673
10uF
16V
R1030
R1031
R1026
R1027
R1028
R1029
75
1/16W
NT NOT USED
SDA-A
SCL-A
R1019
R1018
100
1/16W
MAIN-V-OUT
R1083
R1149
R995
R994
R993
R992
MAIN-YOUT
MAIN-COUT
SUB-YOUT
SUB-COUT
C685
C686
C681
C682
SIDE-Y
SIDE-C
R1064
R1065
C683
C684
R1120
R1121
R1122
R1123
4.7K
R1113
R1114
C773
100nF
25V
MATERIAL
IC134
TEA6425D
ADDR:92h
C774
100nF
25V
MATERIAL
SUB-MIXED-V-OUT
NTSC: SUB-VOUT
PAL:EXT3-VOUT
SUB-C-OUT
MAIN-Y(V)-OUT
MAIN-C-OUT
CAP(TTX)-Y-OUT
SUB-Y-OUT
MON-MIXED-V-OUT
EXT3-MIXED-V-OUT
EXT2-MIXED-V-OUT
ONLY NT
8VB-6425
MTNR-CVBS
STNR-CVBS
V1-IN(EXT2-V(Y))
V2-IN(EXT3-V(Y))
EXT1-V(Y)
SIDE-V
R1007
R1006
R998
R999
R1000
R1001
C680
C679
C675
C676
C677
C678
R1032
R1033
R1034
R1035
NOT USED
C772
100nF
25V
MATERIAL
IC133
TEA6425D
ADDR:90h
C771
100nF
25V
MATERIAL
MAIN-V-OUT
SUB-V-OUT
CAP(TTX)-V-OUT
EXT2OUT-V
MON-V-OUT
EXT3OUT-V
R1091
ONLY PAL
R1155
R1156
330
C767
470uF
16V
R1133
68
R1105
1.5K
EXT1-VOUT
R1002
R1119
KSA1182
Q136
2004.2.16
8VB-6425
Q142
KSC1623-G
R1082
R1124
R1175
R1084
R1125
Q143
KSC1623-G
R1158
R1157
R1159
R1160
R1115
MAIN-Y(V)
R1116
MAIN-C
PAL:SUB-MIXED-V-OUT+EXT3-MIXED-V-OUT
NT:SUB-MIXED-V-OUT+SUB-V-OUT
SUB-MIXED-V-OUT
R1085
R1151
SUB-V-OUT
R1086
R1095
R1126
R1176
Q144
KSC1623-G
KSA1182
Q151
C409
470uF
16V
R1134
68
R670
1.5K
EXT3-VOUT
R1069
SUB-Y(V)
SUB-C-OUT
R1087
R1127
Q145
KSC1623-G
R1117
SUB-C
CAP(TTX)-Y-OUT
R1088
CAP(TTX)-Y-OUT
R1089
R1128
Q146
KSC1623-G
R1177
R1118
CAPTION(TTX)-CVBS
MON-MIXED-V-OUT
R1090
PAL:MON-MIXED-V-OUT+EXT2-MIXED-V-OUT
NT:MON-MIXED-V-OUT+MON-V-OUT
MON-V-OUT
R1150
R1129
EXT2-MIXED-V-OUT
R1145
KSA1182
Q147
C768
470uF
16V
R1135
68
R1108
1.5K
MON-VOUT(EXT2-VOUT)
SUB-V-OUT
R1092
R1130
SUB-Y-OUT
R1093
Q148
KSC1623-G
R1068
SUB-Y(V)
R980
R981
R982
R983
R1055
R1057
1K
ONLY PAL

6-1-5 3D Comb

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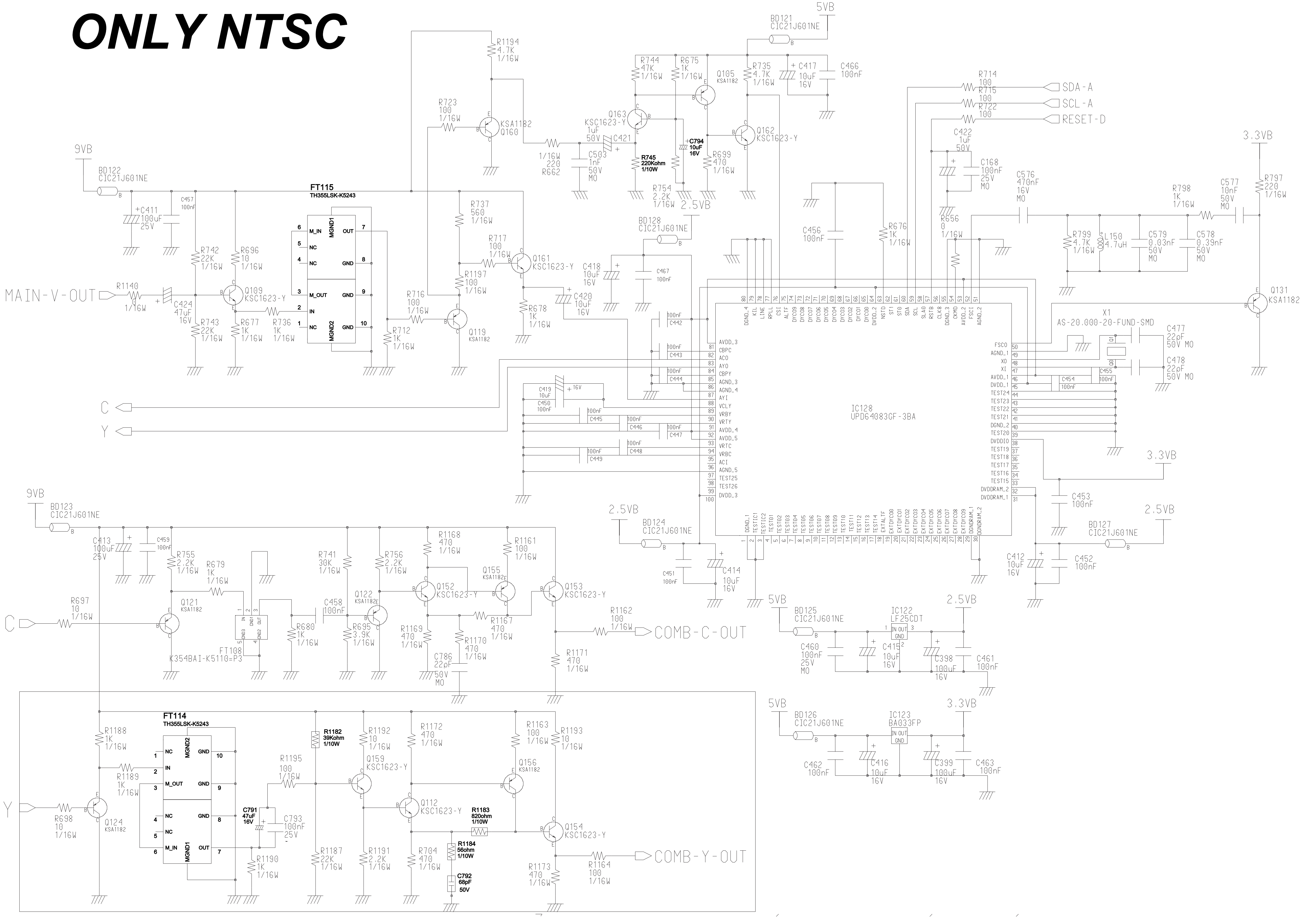
ONLY NTSC
5VB
BD121 CIC21J601NE
R1194 4.7K 1/16W
R744 47K 1/16W
R675 1K 1/16W
Q105 KSA1182
R735 4.7K 1/16W
C417 10uF 16V
C466 100nF
R714 100
R715 100
R722 100
SDA-A
SCL-A
RESET-D
R723 100 1/16W
KSA1182 Q160
Q163 KSC1623-Y
1uF 50V C421
Q162 KSC1623-Y
C794 10uF 16V
R745 220Kohm 1/10W
R699 470 1/16W
1/16W 220 R662
C503 1nF 50V MO
R754 2.2K 1/16W
C422 1uF 50V
C168 100nF 25V MO
3.3VB
C576 470nF 16V MO
R797 220 1/16W
C577 10nF 50V MO
R798 1K 1/16W
9VB
BD122 CIC21J601NE
C457 100nF
C411 100uF 25V
FT115 TH355LSK-K5243
M_IN MGND1 OUT NC NC GND M_OUT GND IN NC MGND2 GND
R737 560 1/16W
R717 100 1/16W
Q161 KSC1623-Y
R1197 100 1/16W
2.5VB
BD128 CIC21J601NE
C467 100nF
C418 10uF 16V
C420 10uF 16V
C456 100nF
R676 1K 1/16W
R656 0 1/16W
R799 4.7K 1/16W
L150 4.7uH
C579 0.03nF 50V MO
C578 0.39nF 50V MO
R742 22K 1/16W
R696 10 1/16W
MAIN-V-OUT
R1140 0 1/16W
C424 47uF 16V
Q109 KSC1623-Y
R743 22K 1/16W
R677 1K 1/16W
R736 1K 1/16W
R716 100 1/16W
Q119 KSA1182
R712 1K 1/16W
R678 1K 1/16W
Q131 KSA1182
X1 AS-20.000-20-FUND-SMD
C477 22pF 50V MO
C478 22pF 50V MO
C442 C443 C444 100nF
C419 10uF 16V
C450 100nF
C445 C446 C447 C448 C449 100nF
C454 100nF C455 100nF
C
Y
IC128 UPD64083GF-3BA
AVDD_3 CBPC ACO AYO CBPY AGND_3 AGND_4 AYI VCLY VRBY VRTY AVDD_4 AVDD_5 VRTC VRBC ACI AGND_5 TEST25 TEST26 DVDD_3
FSCO AGND_1 XO XI AVDD_1 DVDD_1 TEST24 TEST23 TEST22 TEST21 DGND_2 TEST20 DVDDIO TEST19 TEST18 TEST17 TEST16 TEST15 DVDDRAM_2 DVDDRAM_1
DGND_4 KIL LINE RPLL CS1 ALTF DYCO8 DYCO7 DYCO6 DYCO5 DYCO4 DYCO3 DYCO2 DYCO1 DYCO0 DVDD_2 NRST ST1 ST0 SDA SCL SLA0 RSTB CLK8 DGND_3 CKMD AVDD_2 FSCI AGND_2
DGND_1 TESTIC1 TESTIC2 TEST01 TEST02 TEST03 TEST04 TEST05 TEST06 TEST07 TEST08 TEST09 TEST10 TEST11 TEST12 TEST13 TEST14 EXTALTF EXTDYC00 EXTDYC01 EXTDYC02 EXTDYC03 EXTDYC04 EXTDYC05 EXTDYC06 EXTDYC07 EXTDYC08 EXTDYC09 DGNDRAM_1 DGNDRAM_2
3.3VB
C453 100nF
2.5VB
BD127 CIC21J601NE
C412 10uF 16V
C452 100nF
2.5VB
BD124 CIC21J601NE
C451 100nF
C414 10uF 16V
9VB
BD123 CIC21J601NE
C413 100uF 25V
C459 100nF
R755 2.2K 1/16W
R679 1K 1/16W
R741 30K 1/16W
R756 2.2K 1/16W
R1168 470 1/16W
R1161 100 1/16W
Q152 KSC1623-Y
Q155 KSA1182
Q153 KSC1623-Y
R697 10 1/16W
Q121 KSA1182
C458 100nF
Q122 KSA1182
R680 1K 1/16W
R695 3.9K 1/16W
R1169 470 1/16W
R1170 470 1/16W
R1167 470 1/16W
R1162 100 1/16W
COMB-C-OUT
C786 22pF 50V MO
R1171 470 1/16W
FT108 K354BAI-K5110=P3
IN GND1 OUT GND3 GND2
5VB
BD125 CIC21J601NE
IC122 LF25CDT
IN OUT GND
2.5VB
C460 100nF 25V MO
C415 10uF 16V
C398 100uF 16V
C461 100nF
5VB
BD126 CIC21J601NE
IC123 BA033FP
3.3VB
C462 100nF
C416 10uF 16V
C399 100uF 16V
C463 100nF
FT114 TH355LSK-K5243
R1188 1K 1/16W
R1189 1K 1/16W
R1182 39Kohm 1/10W
R1192 10 1/16W
R1172 470 1/16W
R1163 100 1/16W
R1193 10 1/16W
R1195 100 1/16W
Q159 KSC1623-Y
Q156 KSA1182
Y
R698 10 1/16W
Q124 KSA1182
C791 47uF 16V
C793 100nF 25V
Q112 KSC1623-Y
R1183 820ohm 1/10W
Q154 KSC1623-Y
R1184 56ohm 1/10W
C792 68pF 50V
R1187 22K 1/16W
R1191 2.2K 1/16W
R704 470 1/16W
R1190 1K 1/16W
R1173 470 1/16W
R1164 100 1/16W
COMB-Y-OUT

6-1-6 Sound Processor Amp

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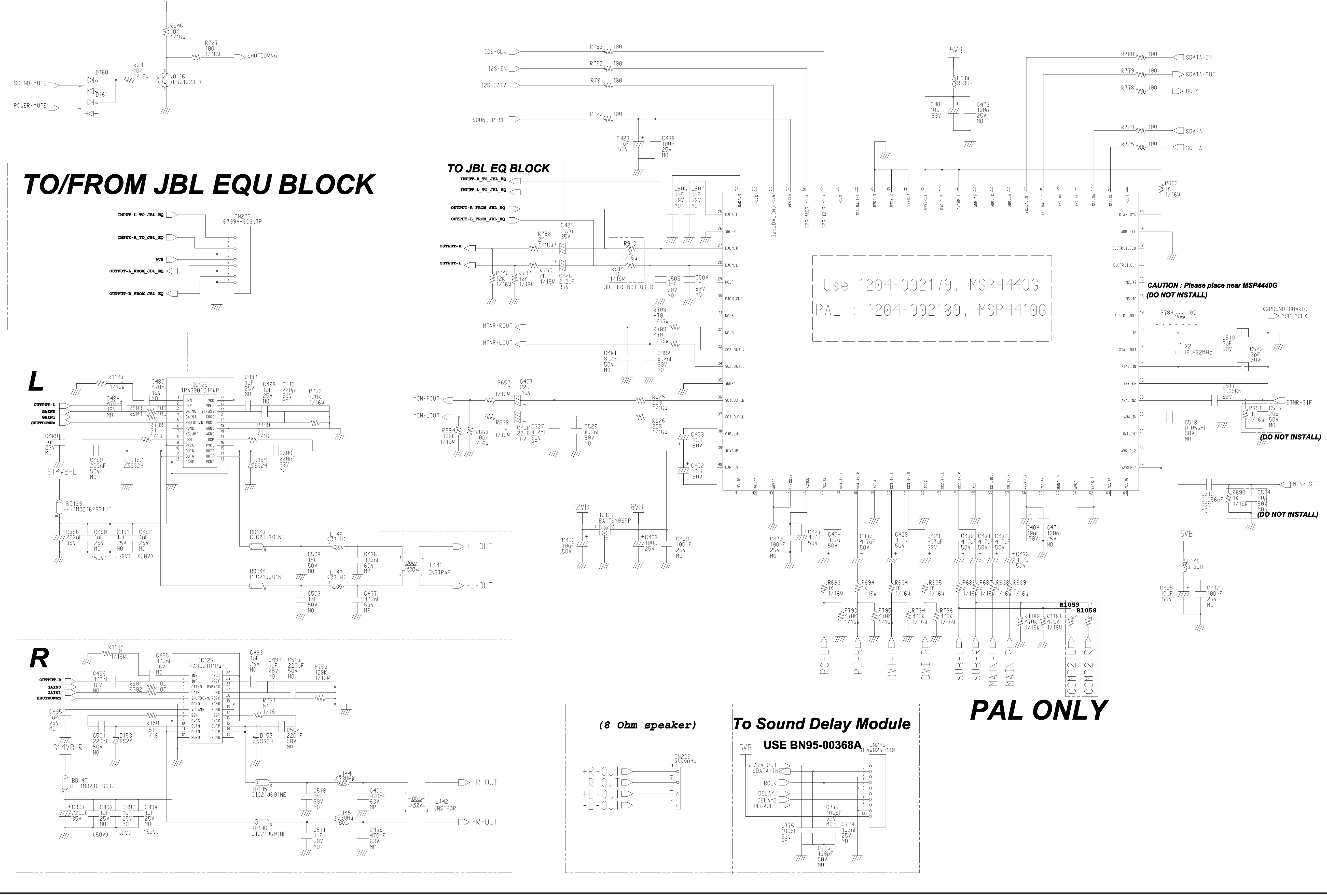
IC124
MSP3421G-QA-B11
TO/FROM JBL EQU BLOCK
CN270
67094-009,1P
INPUT-L_TO_JBL_EQ
INPUT-R_TO_JBL_EQ
5VB
OUTPUT-L_FROM_JBL_EQ
OUTPUT-R_FROM_JBL_EQ
TO JBL EQ BLOCK
JBL EQ NOT USED
SOUND-MUTE
POWER-MUTE
SHUTDOWNn
Q116
KSC1623-Y
I2S-CLK
I2S-EN
I2S-DATA
SOUND-RESET
MTNR-ROUT
MTNR-LOUT
MON-ROUT
MON-LOUT
OUTPUT-R
OUTPUT-L
SDATA-IN
SDATA-OUT
BCLK
SDA-A
SCL-A
Use 1204-002179, MSP4440G
PAL : 1204-002180, MSP4410G
CAUTION : Please place near MSP4440G
(DO NOT INSTALL)
(GROUND GUARD)
MSP-MCLK
X2
18.432MHz
STNR-SIF
MTNR-SIF
(DO NOT INSTALL)
(DO NOT INSTALL)
L
IC126
TPA3001D1PWP
S14VB-L
BD139
HH-1M3216-601JT
BD143
CIC21J601NE
BD144
CIC21J601NE
L141
INSTPAR
+L-OUT
-L-OUT
R
IC125
TPA3001D1PWP
S14VB-R
BD140
HH-1M3216-601JT
BD145
CIC21J601NE
BD146
CIC21J601NE
L142
INSTPAR
+R-OUT
-R-OUT
12VB
8VB
IC127
BA178M08FP
PC-L
PC-R
DVI-L
DVI-R
SUB-L
SUB-R
MAIN-L
MAIN-R
COMP2-L
COMP2-R
R1059
R1058
PAL ONLY
(8 Ohm speaker)
CN228
+R-OUT
-R-OUT
+L-OUT
-L-OUT
To Sound Delay Module
USE BN95-00368A
CN246
SDATA-OUT
SDATA-IN
BCLK
DELAY1
DELAY2
DEFAULT

6-1-7 AV Switching_Audio

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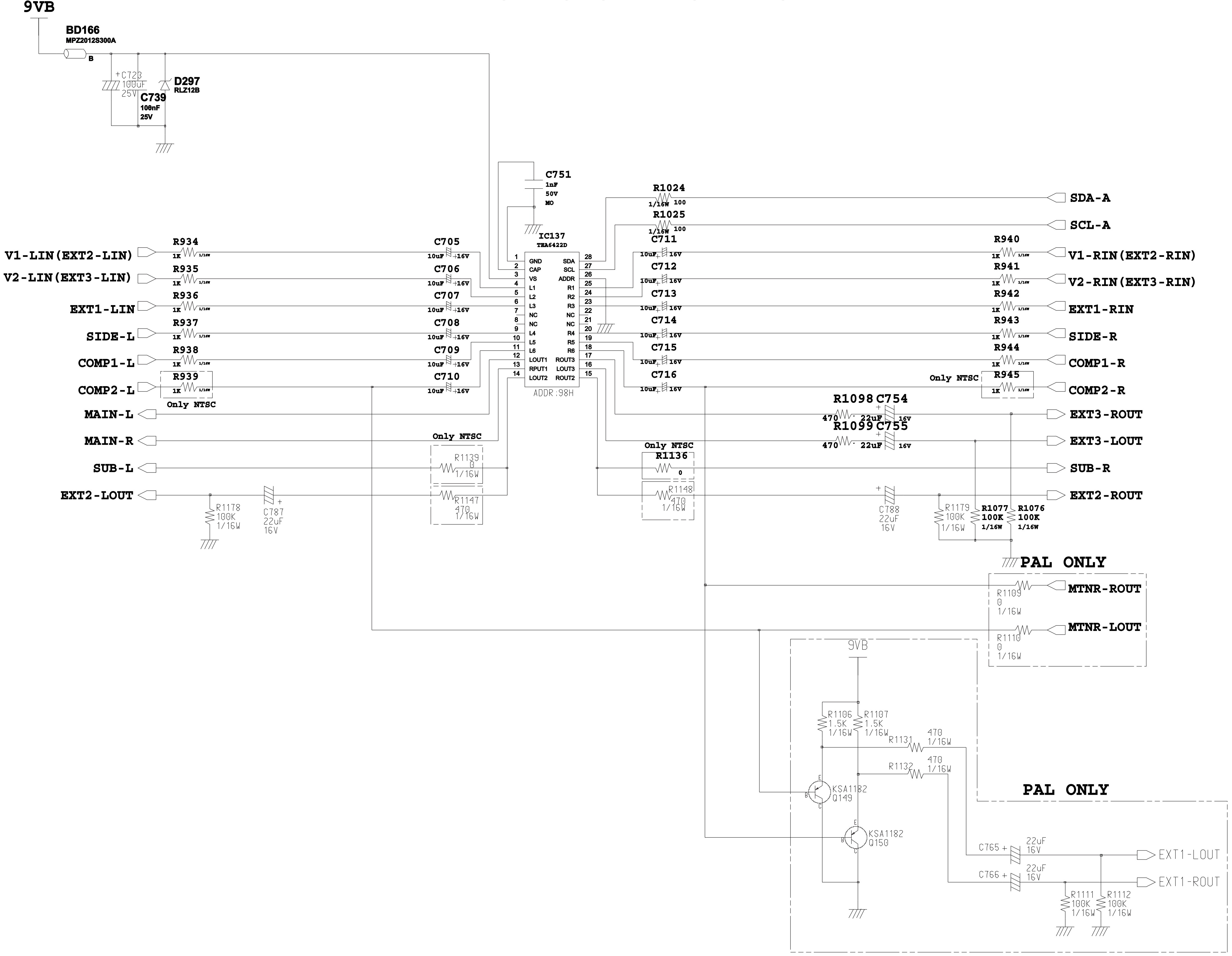
AUDIO SWITCHING


9VB
BD166
MPZ2012S300A
B
C723
100uF
25V
D297
RLZ12B
C739
100nF
25V
C751
1nF
50V
MO
IC137
TEA6422D
1 GND
2 CAP
3 VS
4 L1
5 L2
6 L3
7 NC
8 NC
9 L4
10 L5
11 L6
12 LOUT1
13 RPUT1
14 LOUT2
28 SDA
27 SCL
26 ADDR
25 R1
24 R2
23 R3
22 NC
21 NC
20 R4
19 R5
18 R6
17 ROUT3
16 LOUT3
15 ROUT2
ADDR:98H
R1024 1/16W 100
R1025 1/16W 100
SDA-A
SCL-A
V1-LIN(EXT2-LIN)
V2-LIN(EXT3-LIN)
EXT1-LIN
SIDE-L
COMP1-L
COMP2-L
R934 1K 1/16W
R935 1K 1/16W
R936 1K 1/16W
R937 1K 1/16W
R938 1K 1/16W
R939 1K 1/16W
Only NTSC
C705 10uF 16V
C706 10uF 16V
C707 10uF 16V
C708 10uF 16V
C709 10uF 16V
C710 10uF 16V
MAIN-L
MAIN-R
SUB-L
EXT2-LOUT
Only NTSC
R1139 0 1/16W
R1147 470 1/16W
R1178 100K 1/16W
C787 22uF 16V
C711 10uF 16V
C712 10uF 16V
C713 10uF 16V
C714 10uF 16V
C715 10uF 16V
C716 10uF 16V
R940 1K 1/16W
R941 1K 1/16W
R942 1K 1/16W
R943 1K 1/16W
R944 1K 1/16W
Only NTSC
R945 1K 1/16W
V1-RIN(EXT2-RIN)
V2-RIN(EXT3-RIN)
EXT1-RIN
SIDE-R
COMP1-R
COMP2-R
R1098 470
C754 22uF 16V
R1099 470
C755 22uF 16V
EXT3-ROUT
EXT3-LOUT
SUB-R
EXT2-ROUT
Only NTSC
R1136 0
R1148 470 1/16W
C788 22uF 16V
R1179 100K 1/16W
R1077 100K 1/16W
R1076 100K 1/16W
PAL ONLY
R1109 0 1/16W
MTNR-ROUT
R1110 0 1/16W
MTNR-LOUT
9VB
R1106 1.5K 1/16W
R1107 1.5K 1/16W
R1131 470 1/16W
R1132 470 1/16W
KSA1182 Q149
KSA1182 Q150
E B C
PAL ONLY
C765 22uF 16V
C766 22uF 16V
EXT1-LOUT
EXT1-ROUT
R1111 100K 1/16W
R1112 100K 1/16W

6-1-8 Expander & Signal connection

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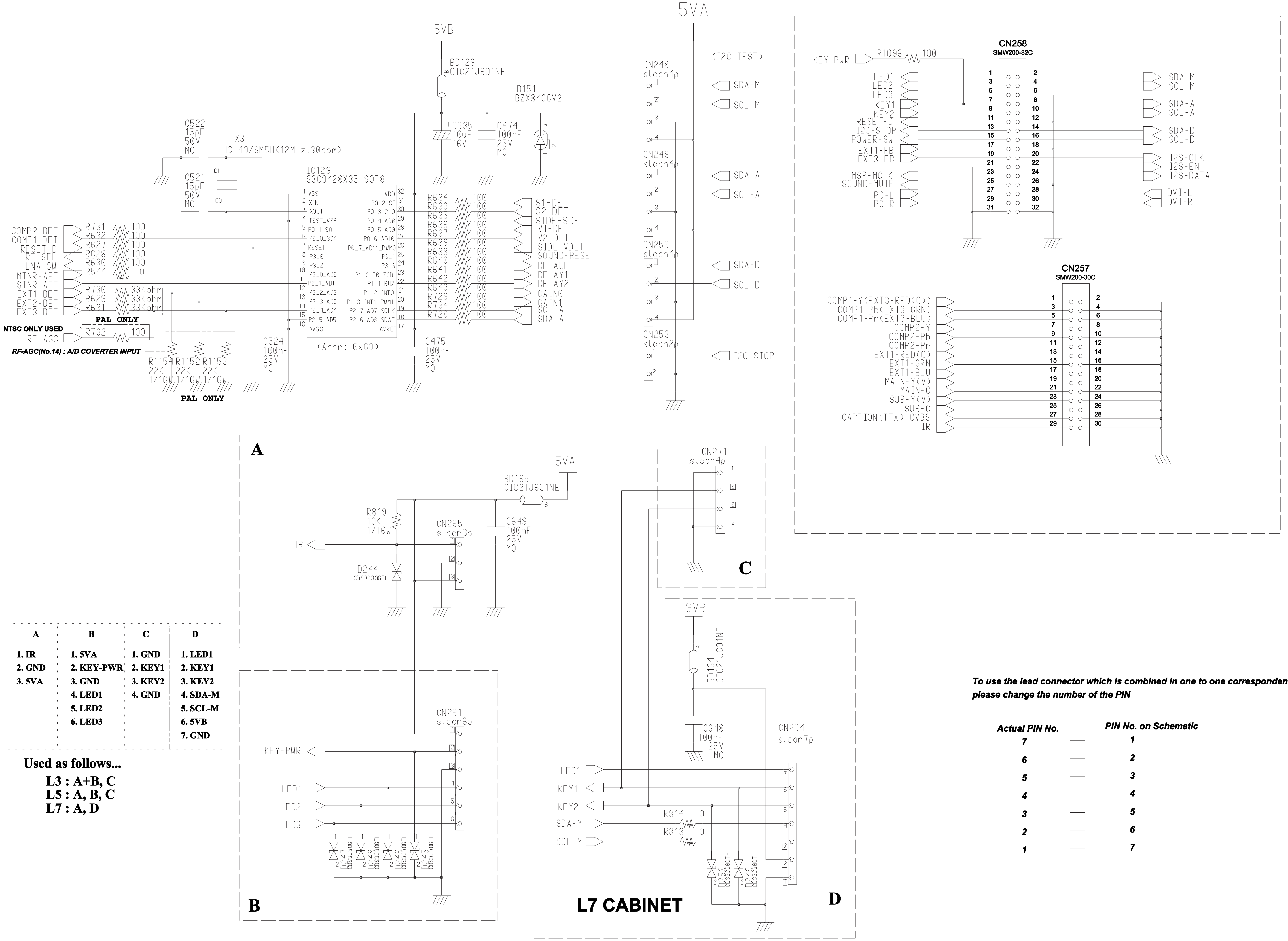
I/O Expander, Signal Connection TO DIGITAL BOARD


5VB
BD129
CIC21J601NE
D151
BZX84C6V2
C335
10uF
16V
C474
100nF
25V
M0
C522
15pF
50V
M0
X3
HC-49/SM5H(12MHz,30ppm)
C521
15pF
50V
M0
IC129
S3C9428X35-S0T8
VSS
XIN
XOUT
TEST_VPP
P0_1_SO
P0_0_SCK
RESET
P3_0
P3_2
P2_0_AD0
P2_1_AD1
P2_2_AD2
P2_3_AD3
P2_4_AD4
P2_5_AD5
AVSS
VDD
P0_2_SI
P0_3_CLO
P0_4_AD8
P0_5_AD9
P0_6_AD10
P0_7_AD11_PWM0
P3_1
P3_3
P1_0_T0_ZCD
P1_1_BUZ
P1_2_INT0
P1_3_INT1_PWM1
P2_7_AD7_SCLK
P2_6_AD6_SDAT
AVREF
(Addr: 0x60)
COMP2-DET
COMP1-DET
RESET-D
RF-SEL
LNA-SW
MTNR-AFT
STNR-AFT
EXT1-DET
EXT2-DET
EXT3-DET
R731 100
R632 100
R627 100
R628 100
R630 100
R544 0
R730 33Kohm
R629 33Kohm
R631 33Kohm
PAL ONLY
NTSC ONLY USED
RF-AGC
R732 100
RF-AGC(No.14) : A/D COVERTER INPUT
R1154 22K 1/16W
R1152 22K 1/16W
R1153 22K 1/16W
PAL ONLY
C524
100nF
25V
M0
C475
100nF
25V
M0
R634 100
R633 100
R635 100
R636 100
R637 100
R639 100
R638 100
R640 100
R641 100
R642 100
R643 100
R729 100
R734 100
R728 100
S1-DET
S2-DET
SIDE-SDET
V1-DET
V2-DET
SIDE-VDET
SOUND-RESET
DEFAULT
DELAY1
DELAY2
GAIN0
GAIN1
SCL-A
SDA-A
5VA
(I2C TEST)
CN248
slcon4p
SDA-M
SCL-M
CN249
slcon4p
SDA-A
SCL-A
CN250
slcon4p
SDA-D
SCL-D
CN253
slcon2p
I2C-STOP
CN258
SMW200-32C
KEY-PWR
R1096 100
LED1
LED2
LED3
KEY1
KEY2
RESET-D
I2C-STOP
POWER-SW
EXT1-FB
EXT3-FB
MSP-MCLK
SOUND-MUTE
PC-L
PC-R
SDA-M
SCL-M
SDA-A
SCL-A
SDA-D
SCL-D
I2S-CLK
I2S-EN
I2S-DATA
DVI-L
DVI-R
CN257
SMW200-30C
COMP1-Y(EXT3-RED(C))
COMP1-Pb(EXT3-GRN)
COMP1-Pr(EXT3-BLU)
COMP2-Y
COMP2-Pb
COMP2-Pr
EXT1-RED(C)
EXT1-GRN
EXT1-BLU
MAIN-Y(V)
MAIN-C
SUB-Y(V)
SUB-C
CAPTION(TTX)-CVBS
IR
A
5VA
BD165
CIC21J601NE
R819
10K
1/16W
CN265
slcon3p
C649
100nF
25V
M0
IR
D244
CDS3C30GTH
CN271
slcon4p
C
B
CN261
slcon6p
KEY-PWR
LED1
LED2
LED3
D247 CDS3C30GTH
D248 CDS3C30GTH
D246 CDS3C30GTH
D245 CDS3C30GTH
9VB
BD164
CIC21J601NE
C648
100nF
25V
M0
CN264
slcon7p
LED1
KEY1
KEY2
SDA-M
SCL-M
R814 0
R813 0
D250 CDS3C30GTH
D249 CDS3C30GTH
L7 CABINET
D

A	B	C	D
1. IR 2. GND 3. 5VA	1. 5VA 2. KEY-PWR 3. GND 4. LED1 5. LED2 6. LED3	1. GND 2. KEY1 3. KEY2 4. GND	1. LED1 2. KEY1 3. KEY2 4. SDA-M 5. SCL-M 6. 5VB 7. GND

Used as follows...

L3 : A+B, C
L5 : A, B, C
L7 : A, D

To use the lead connector which is combined in one to one correspondence, please change the number of the PIN

Actual PIN No.		*PIN No. on Schematic*
7	—	1
6	—	2
5	—	3
4	—	4
3	—	5
2	—	6
1	—	7

6-2 DIGITAL

6-2-1 SIG_INPUT

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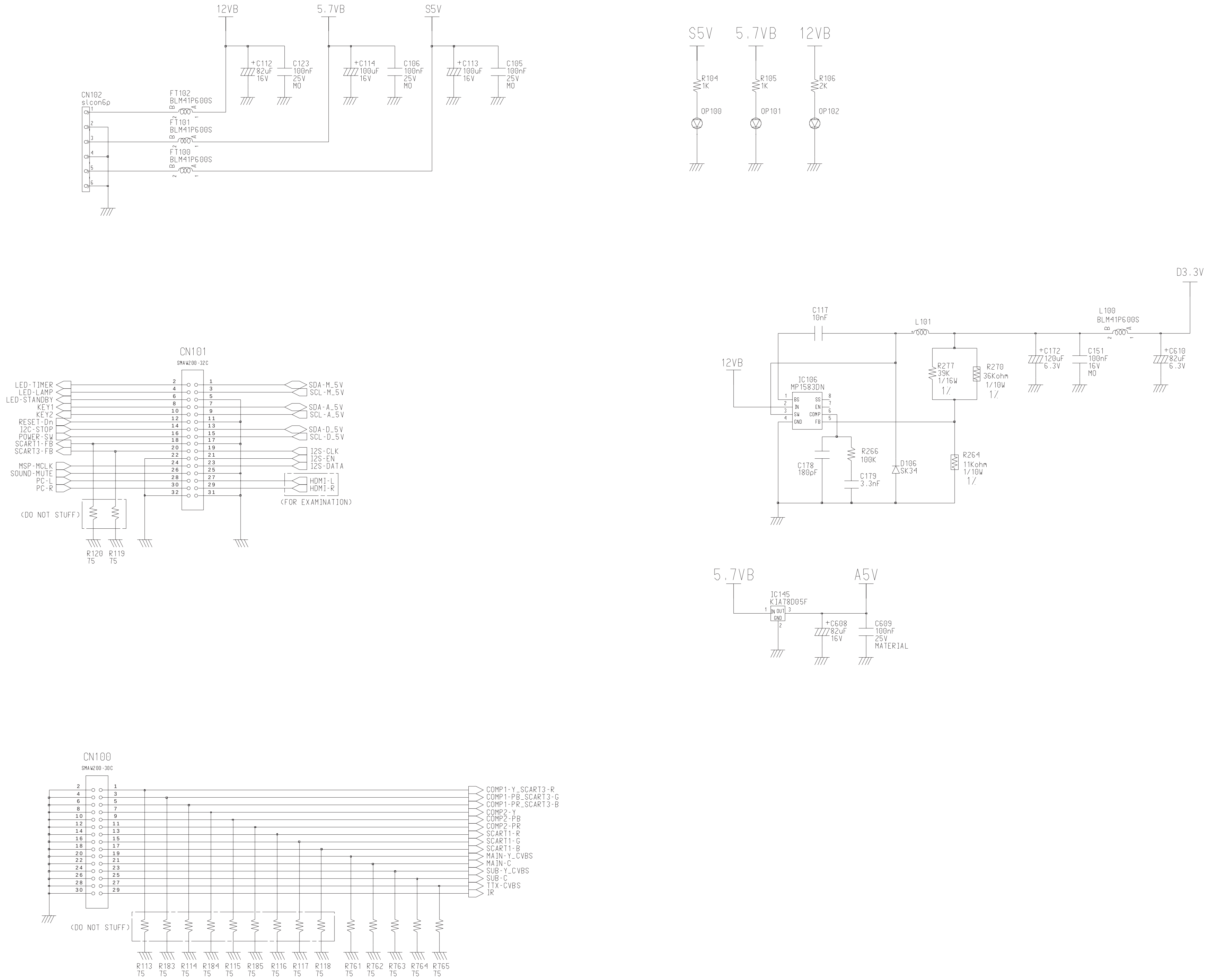
12VB
5.7VB
S5V
C112 82uF 16V
C123 100nF 25V MO
C114 100uF 16V
C106 100nF 25V MO
C113 100uF 16V
C105 100nF 25V MO
CN102 slcon6p
FT102 BLM41P600S
FT101 BLM41P600S
FT100 BLM41P600S
S5V
5.7VB
12VB
R104 1K
R105 1K
R106 2K
OP100
OP101
OP102
D3.3V
C117 10nF
L101
L100 BLM41P600S
12VB
R277 39K 1/16W
R270 36Kohm 1/10W
C172 120uF 6.3V
C151 100nF 16V MO
C610 82uF 6.3V
IC106 MP1583DN
BS SS IN EN SW COMP GND FB
R266 100K
C178 180pF
C179 3.3nF
D106 SK34
R264 11Kohm 1/10W
CN101
SMAW200-32C
LED-TIMER
LED-LAMP
LED-STANDBY
KEY1
KEY2
RESET-On
I2C-STOP
POWER-SW
SCART1-FB
SCART3-FB
MSP-MCLK
SOUND-MUTE
PC-L
PC-R
SDA-M_5V
SCL-M_5V
SDA-A_5V
SCL-A_5V
SDA-D_5V
SCL-D_5V
I2S-CLK
I2S-EN
I2S-DATA
HDMI-L
HDMI-R
(FOR EXAMINATION)
(DO NOT STUFF)
R120 75
R119 75
5.7VB
A5V
IC145 KIA78D05F
IN OUT GND
C608 82uF 16V
C609 100nF 25V MATERIAL
CN100
SMAW200-30C
COMP1-Y_SCART3-R
COMP1-PB_SCART3-G
COMP1-PR_SCART3-B
COMP2-Y
COMP2-PB
COMP2-PR
SCART1-R
SCART1-G
SCART1-B
MAIN-Y_CVBS
MAIN-C
SUB-Y_CVBS
SUB-C
TTX-CVBS
IR
(DO NOT STUFF)
R113 75
R183 75
R114 75
R184 75
R115 75
R185 75
R116 75
R117 75
R118 75
R761 75
R762 75
R763 75
R764 75
R765 75

6-2-2 VPC3230_MAIN

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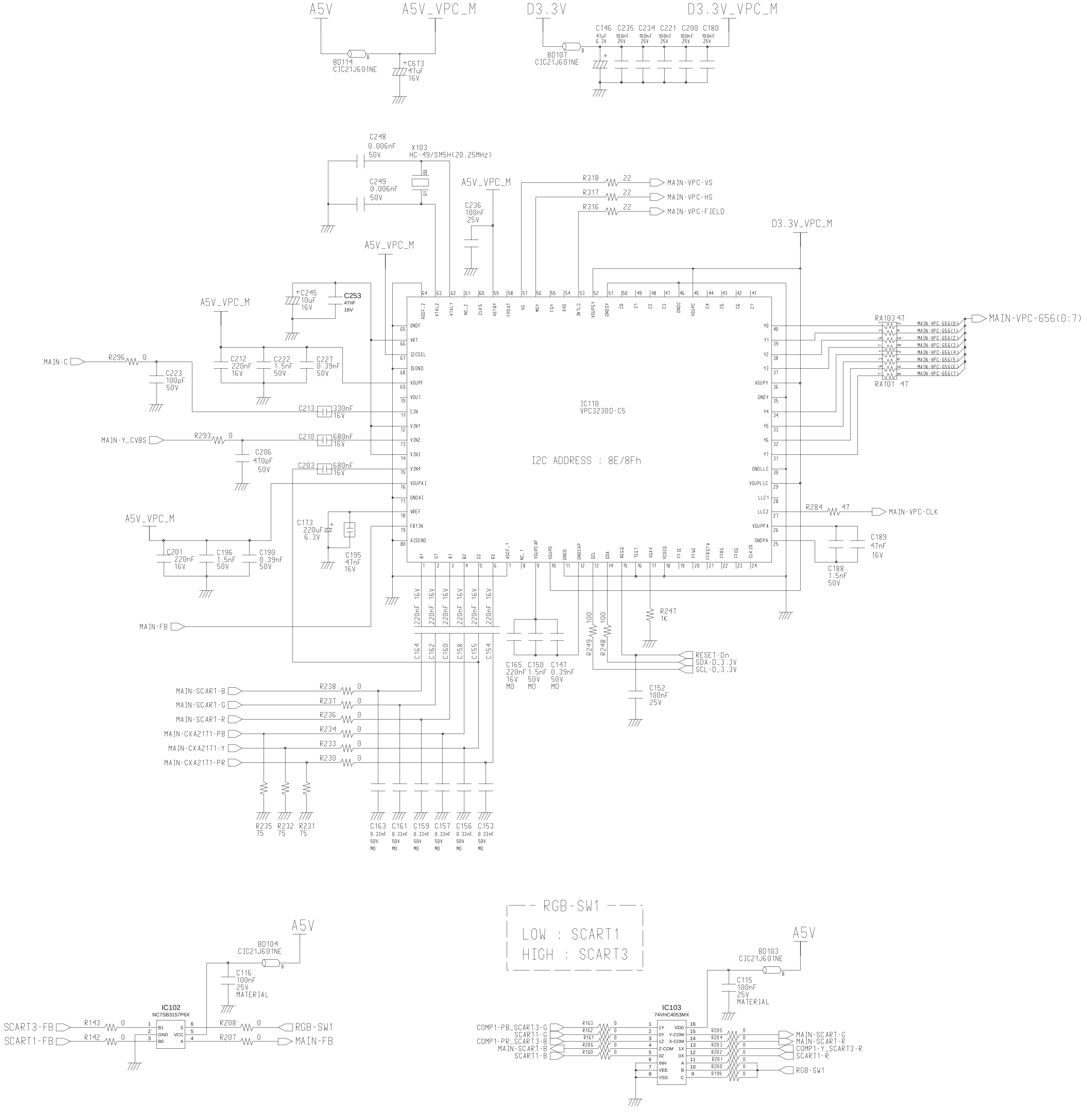
A5V
A5V_VPC_M
D3.3V
D3.3V_VPC_M
BD114 CIC21J601NE
C673 47uF 16V
BD107 CIC21J601NE
C146 C235 C234 C221 C200 C180
C248 0.006nF 50V
C249 0.006nF 50V
X103 HC-49/SM5H(20.25MHz)
C236 100nF 25V
R318 22 MAIN-VPC-VS
R317 22 MAIN-VPC-HS
R316 22 MAIN-VPC-FIELD
C245 10uF 16V
C253 47nF 16V
MAIN-C
R296 0
C223 100pF 50V
C212 220nF 16V
C222 1.5nF 50V
C227 0.39nF 50V
C213 330nF 16V
MAIN-Y_CVBS
R293 0
C210 680nF 16V
C206 470pF 50V
C203 680nF 16V
C173 220uF 6.3V
C195 47nF 16V
C201 220nF 16V
C196 1.5nF 50V
C190 0.39nF 50V
MAIN-FB
IC110 VPC3230D-C5
I2C ADDRESS : 8E/8Fh
RA103 47
RA101 47
MAIN-VPC-656(0:7)
R284 47 MAIN-VPC-CLK
C189 47nF 16V
C188 1.5nF 50V
C164 C162 C160 C158 C155 C154 220nF 16V
C165 220nF 16V MO
C150 1.5nF 50V MO
C147 0.39nF 50V MO
R249 100
R248 100
R247 1K
RESET-Dn
SDA-D_3.3V
SCL-D_3.3V
C152 100nF 25V
MAIN-SCART-B R238 0
MAIN-SCART-G R237 0
MAIN-SCART-R R236 0
MAIN-CXA2171-PB R234 0
MAIN-CXA2171-Y R233 0
MAIN-CXA2171-PR R230 0
R235 75
R232 75
R231 75
C163 C161 C159 C157 C156 C153 0.33nF 50V MO
RGB-SW1
LOW : SCART1
HIGH : SCART3
BD104 CIC21J601NE
C116 100nF 25V MATERIAL
IC102 NC7SB3157P6X
SCART3-FB R143 0
SCART1-FB R142 0
R208 0 RGB-SW1
R207 0 MAIN-FB
BD103 CIC21J601NE
C115 100nF 25V MATERIAL
IC103 74VHC4053MX
COMP1-PB_SCART3-G
SCART1-G
COMP1-PR_SCART3-B
MAIN-SCART-B
SCART1-B
R163 R162 R161 R206 R160 0
R205 R204 R203 R202 R201 R200 R199 0
MAIN-SCART-G
MAIN-SCART-R
COMP1-Y_SCART3-R
SCART1-R
RGB-SW1

6-2-3 FLI2310_MAIN

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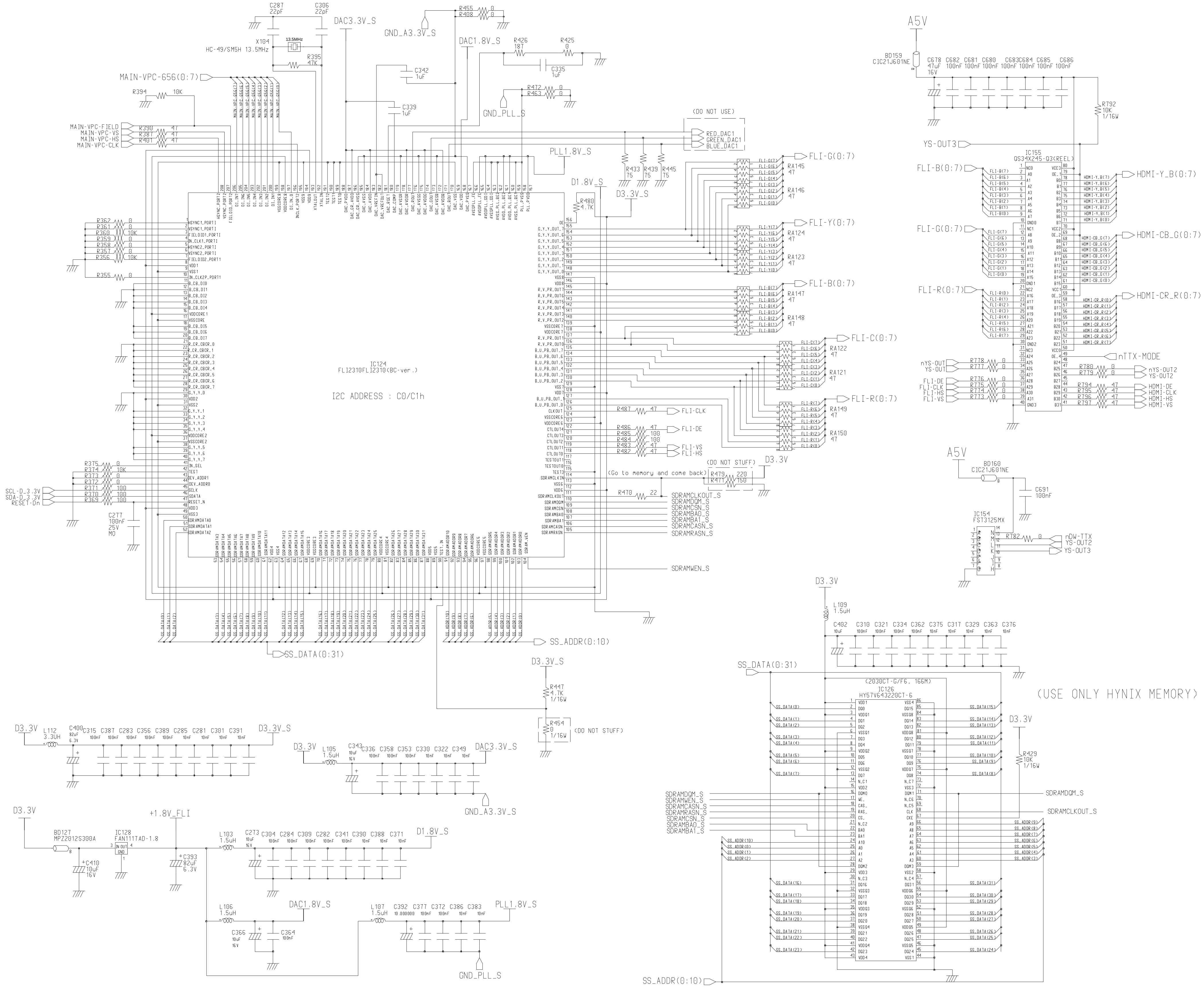
IC124
FLI2310FLI2310(BC-ver.)
I2C ADDRESS : C0/C1h
X104
HC-49/SM5H 13.5MHz
MAIN-VPC-656(0:7)
MAIN-VPC-FIELD
MAIN-VPC-VS
MAIN-VPC-HS
MAIN-VPC-CLK
SCL-0.3.3V
SDA-0.3.3V
RESET-On
DAC3.3V_S
GND_A3.3V_S
DAC1.8V_S
GND_PLL_S
PLL1.8V_S
D1.8V_S
D3.3V_S
(DO NOT USE)
RED_DAC1
GREEN_DAC1
BLUE_DAC1
FLI-G(0:7)
FLI-Y(0:7)
FLI-B(0:7)
FLI-C(0:7)
FLI-R(0:7)
FLI-CLK
FLI-DE
FLI-VS
FLI-HS
(DO NOT STUFF)
(Go to memory and come back)
SDRAMCLKOUT_S
SDRAMDQM_S
SDRAMCSN_S
SDRAMBA0_S
SDRAMBA1_S
SDRAMCASN_S
SDRAMRASN_S
SDRAMWEN_S
SS_ADDR(0:10)
SS_DATA(0:31)
A5V
YS-OUT3
IC155
QS34X245-Q3(REEL)
HDMI-Y_B(0:7)
HDMI-CB_G(0:7)
HDMI-CR_R(0:7)
nTTX-MODE
nYS-OUT
YS-OUT
nYS-OUT2
YS-OUT2
HDMI-DE
HDMI-CLK
HDMI-HS
HDMI-VS
IC154
FST3125MX
nDW-TTX
D3.3V
IC126
HY57V643220CT-6
(2030CT-G/F6, 166M)
(USE ONLY HYNIX MEMORY)
+1.8V_FLI
IC128
FAN1117AD-1.8
BD127
MPZ2012S300A
DAC1.8V_S
PLL1.8V_S
GND_PLL_S
GND_A3.3V_S

6-2-4 VPC3230_SUB

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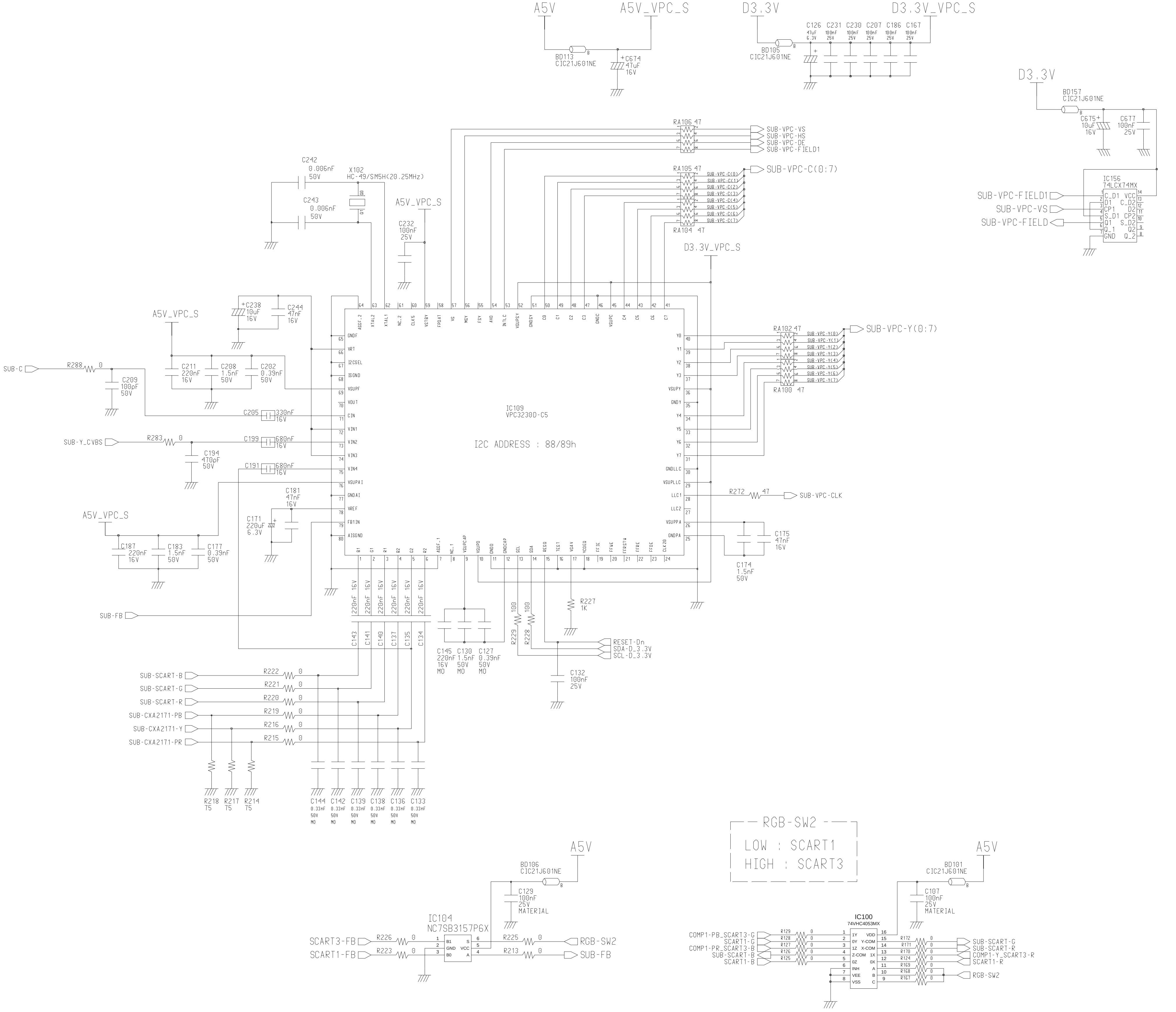
A5V
A5V_VPC_S
BD113
CIC21J601NE
C674
47uF
16V
D3.3V
D3.3V_VPC_S
BD105
CIC21J601NE
C126 C231 C230 C207 C186 C167
BD157
CIC21J601NE
C675
10uF
16V
C677
100nF
25V
IC156
74LCX74MX
SUB-VPC-FIELD1
SUB-VPC-VS
SUB-VPC-FIELD
RA106 47
SUB-VPC-VS
SUB-VPC-HS
SUB-VPC-OE
SUB-VPC-FIELD1
RA105 47
RA104 47
SUB-VPC-C(0:7)
C242
0.006nF
50V
C243
0.006nF
50V
X102
HC-49/SM5H(20.25MHz)
A5V_VPC_S
C232
100nF
25V
D3.3V_VPC_S
C238
10uF
16V
C244
47nF
16V
A5V_VPC_S
C211
220nF
16V
C208
1.5nF
50V
C202
0.39nF
50V
SUB-C
R288
0
C209
100pF
50V
C205
330nF
16V
SUB-Y_CVBS
R283
0
C199
680nF
16V
C194
470pF
50V
C191
680nF
16V
C181
47nF
16V
C171
220uF
6.3V
A5V_VPC_S
C187
220nF
16V
C183
1.5nF
50V
C177
0.39nF
50V
SUB-FB
IC109
VPC3230D-C5
I2C ADDRESS : 88/89h
RA102 47
RA100 47
SUB-VPC-Y(0:7)
R272
47
SUB-VPC-CLK
C175
47nF
16V
C174
1.5nF
50V
C143 C141 C140 C137 C135 C134
220nF 16V
C145
220nF
16V
MO
C130
1.5nF
50V
MO
C127
0.39nF
50V
MO
R229
100
R228
100
R227
1K
RESET-Dn
SDA-D_3.3V
SCL-D_3.3V
C132
100nF
25V
SUB-SCART-B
SUB-SCART-G
SUB-SCART-R
SUB-CXA2171-PB
SUB-CXA2171-Y
SUB-CXA2171-PR
R222 0
R221 0
R220 0
R219 0
R216 0
R215 0
R218
75
R217
75
R214
75
C144 C142 C139 C138 C136 C133
0.33nF
50V
MO
RGB-SW2
LOW : SCART1
HIGH : SCART3
A5V
BD106
CIC21J601NE
C129
100nF
25V
MATERIAL
IC104
NC7SB3157P6X
SCART3-FB
SCART1-FB
R226 0
R223 0
R225 0
R213 0
RGB-SW2
SUB-FB
A5V
BD101
CIC21J601NE
C107
100nF
25V
MATERIAL
IC100
74VHC4053MX
COMP1-PB_SCART3-G
SCART1-G
COMP1-PR_SCART3-B
SUB-SCART-B
SCART1-B
SUB-SCART-G
SUB-SCART-R
COMP1-Y_SCART3-R
SCART1-R
RGB-SW2

6-2-5 CXA2171

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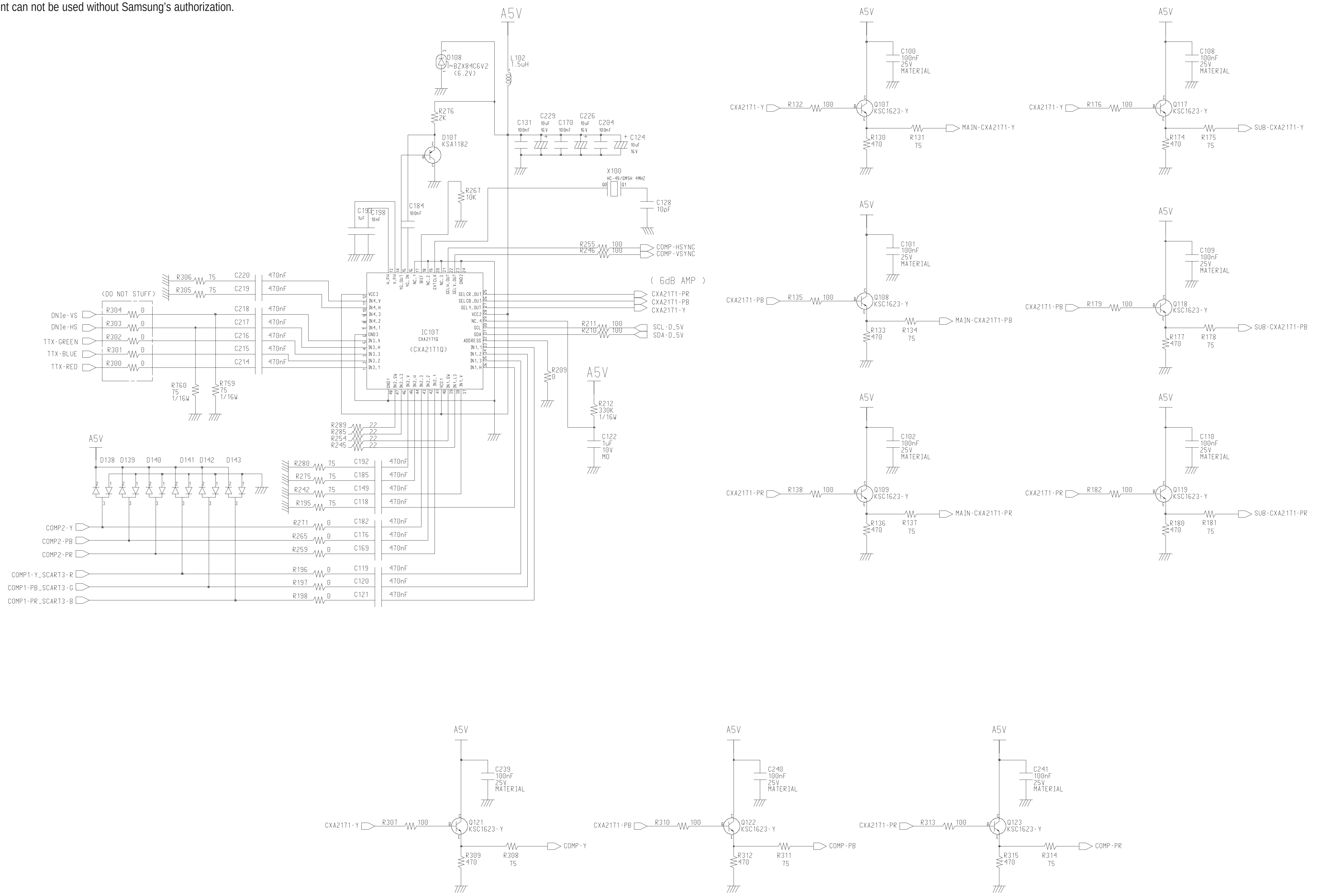
A5V
D108
BZX84C6V2
(6.2V)
L102
1.5uH
R276
2K
D107
KSA1182
C131
100nF
C229
10uF
16V
C170
100nF
C226
10uF
16V
C204
100nF
C124
10uF
16V
R267
10K
X100
HC-49/SMSH 4MHZ
C128
10pF
C199
1uF
C198
10nF
C184
100nF
R255 100
R246 100
COMP-HSYNC
COMP-VSYNC
(6dB AMP)
CXA2171-PR
CXA2171-PB
CXA2171-Y
R211 100
R210 100
SCL-D_5V
SDA-D_5V
IC107
CXA2171Q
(CXA2171Q)
R306 75
R305 75
C220 470nF
C219 470nF
(DO NOT STUFF)
DNIe-VS
DNIe-HS
TTX-GREEN
TTX-BLUE
TTX-RED
R304 0
R303 0
R302 0
R301 0
R300 0
C218 470nF
C217 470nF
C216 470nF
C215 470nF
C214 470nF
R760
75
1/16W
R759
75
1/16W
R209
0
R212
330K
1/16W
C122
1uF
10V
MO
R289 22
R285 22
R254 22
R245 22
D138 D139 D140 D141 D142 D143
R280 75 C192 470nF
R275 75 C185 470nF
R242 75 C149 470nF
R195 75 C118 470nF
COMP2-Y
COMP2-PB
COMP2-PR
COMP1-Y_SCART3-R
COMP1-PB_SCART3-G
COMP1-PR_SCART3-B
R271 0 C182 470nF
R265 0 C176 470nF
R259 0 C169 470nF
R196 0 C119 470nF
R197 0 C120 470nF
R198 0 C121 470nF
C100
100nF
25V
MATERIAL
CXA2171-Y
R132 100
Q107
KSC1623-Y
R130
470
R131
75
MAIN-CXA2171-Y
C108
100nF
25V
MATERIAL
R176 100
Q117
KSC1623-Y
R174
470
R175
75
SUB-CXA2171-Y
C101
100nF
25V
MATERIAL
CXA2171-PB
R135 100
Q108
KSC1623-Y
R133
470
R134
75
MAIN-CXA2171-PB
C109
100nF
25V
MATERIAL
R179 100
Q118
KSC1623-Y
R177
470
R178
75
SUB-CXA2171-PB
C102
100nF
25V
MATERIAL
CXA2171-PR
R138 100
Q109
KSC1623-Y
R136
470
R137
75
MAIN-CXA2171-PR
C110
100nF
25V
MATERIAL
R182 100
Q119
KSC1623-Y
R180
470
R181
75
SUB-CXA2171-PR
C239
100nF
25V
MATERIAL
R307 100
Q121
KSC1623-Y
R309
470
R308
75
COMP-Y
C240
100nF
25V
MATERIAL
R310 100
Q122
KSC1623-Y
R312
470
R311
75
COMP-PB
C241
100nF
25V
MATERIAL
R313 100
Q123
KSC1623-Y
R315
470
R314
75
COMP-PR

6-2-6 MST9883

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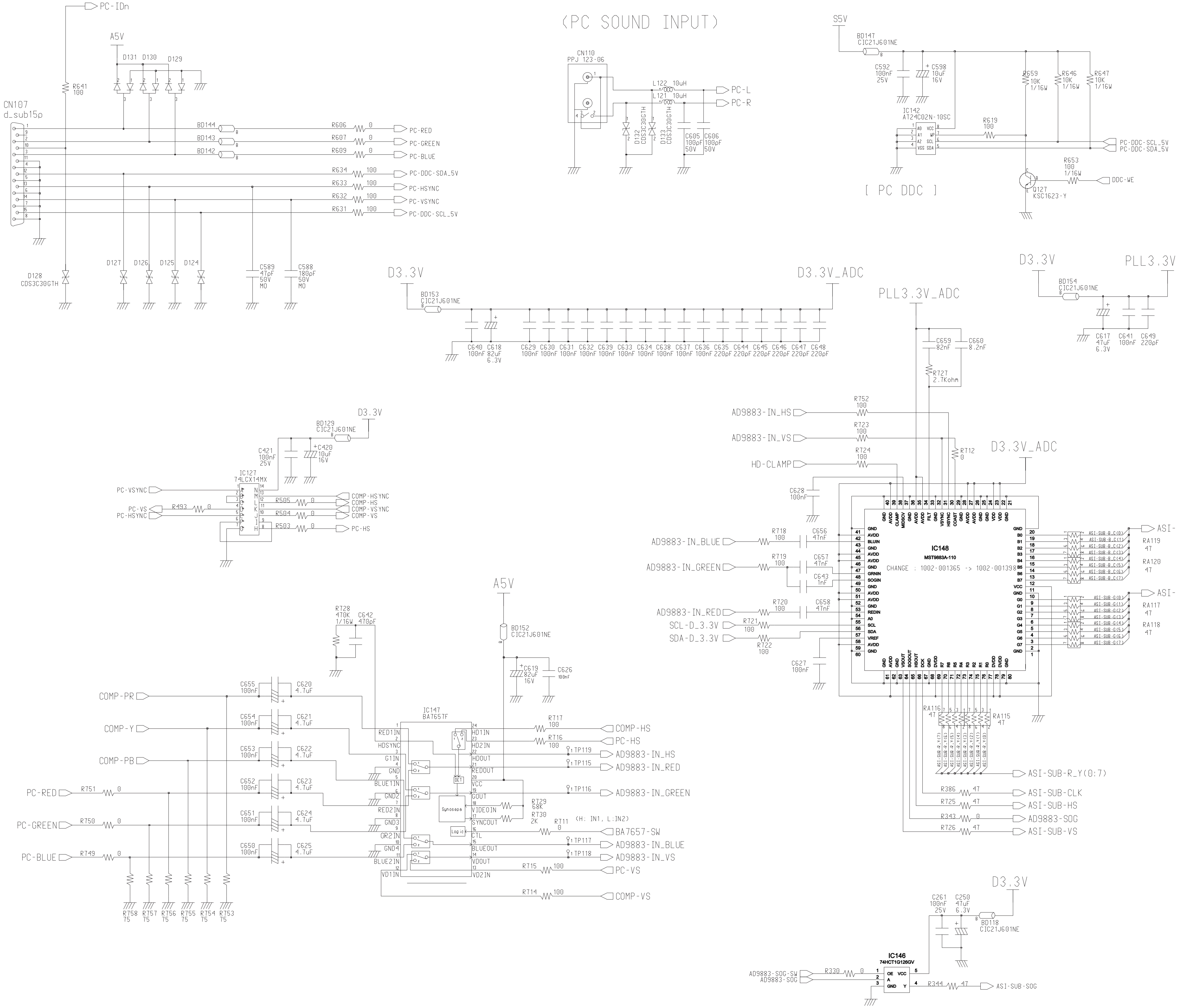

(PC SOUND INPUT)
[PC DDC]
PC-IDn
A5V
CN107
d_sub15p
R641 100
D131 D130 D129
BD144
BD143
BD142
R606 0
R607 0
R609 0
R634 100
R633 100
R632 100
R631 100
PC-RED
PC-GREEN
PC-BLUE
PC-DDC-SDA_5V
PC-HSYNC
PC-VSYNC
PC-DDC-SCL_5V
D128 CDS3C30GTH
D127 D126 D125 D124
C589 47pF 50V MO
C588 180pF 50V MO
CN110 PPJ 123-06
L122 10uH
L121 10uH
D132 CDS3C30GTH
D133 CDS3C30GTH
C605 100pF 50V
C606 100pF 50V
PC-L
PC-R
S5V
BD147 CIC21J601NE
C592 100nF 25V
C598 10uF 16V
R659 10K 1/16W
R646 10K 1/16W
R647 10K 1/16W
IC142 AT24C02N-10SC
R619 100
PC-DDC-SCL_5V
PC-DDC-SDA_5V
R653 100 1/16W
DDC-WE
Q127 KSC1623-Y
D3.3V
BD153 CIC21J601NE
D3.3V_ADC
C640 100nF
C618 82uF 6.3V
C629 C630 C631 C632 C639 C633 C634 C638 C637 C636 100nF
C635 C644 C645 C646 C647 C648 220pF
PLL3.3V_ADC
BD154 CIC21J601NE
C617 47uF 6.3V
C641 100nF
C649 220pF
C659 82nF
C660 8.2nF
R727 2.7Kohm
D3.3V
BD129 CIC21J601NE
C421 100nF 25V
C420 10uF 16V
IC127 74LCX14MX
PC-VSYNC
PC-VS
PC-HSYNC
R493 0
R505 0
R504 0
R503 0
COMP-HSYNC
COMP-HS
COMP-VSYNC
COMP-VS
PC-HS
AD9883-IN_HS
AD9883-IN_VS
HD-CLAMP
R752 100
R723 100
R724 100
R712 0
D3.3V_ADC
C628 100nF
AD9883-IN_BLUE
AD9883-IN_GREEN
AD9883-IN_RED
SCL-D_3.3V
SDA-D_3.3V
R718 100
R719 100
R720 100
R721 100
R722 100
C656 47nF
C657 47nF
C643 1nF
C658 47nF
C627 100nF
IC148
MST9883A-110
CHANGE : 1002-001365 -> 1002-001398
ASI-SUB-B_C(0:7)
ASI-SUB-G(0:7)
RA119 47
RA120 47
RA117 47
RA118 47
RA116 47
RA115 47
ASI-SUB-R_Y(0:7)
R386 47
R725 47
R343 0
R726 47
ASI-SUB-CLK
ASI-SUB-HS
AD9883-SOG
ASI-SUB-VS
A5V
BD152 CIC21J601NE
C619 82uF 16V
C626 100nF
RT28 470K 1/16W
C642 470pF
IC147 BA7657F
COMP-PR
COMP-Y
COMP-PB
C655 100nF
C620 4.7uF
C654 100nF
C621 4.7uF
C653 100nF
C622 4.7uF
C652 100nF
C623 4.7uF
C651 100nF
C624 4.7uF
C650 100nF
C625 4.7uF
PC-RED
PC-GREEN
PC-BLUE
R751 0
R750 0
R749 0
R758 75
R757 75
R756 75
R755 75
R754 75
R753 75
RED1IN
HDSYNC
G1IN
GND
BLUE1IN
GND2
RED2IN
GND3
GR2IN
GND4
BLUE2IN
VD1IN
HD1IN
HD2IN
HDOUT
REDOUT
VCC
GOUT
VIDEOIN
SYNCOUT
CTL
BLUEOUT
VDOUT
VD2IN
Syncsep
Logic
R717 100
R716 100
TP119
TP115
TP116
TP117
TP118
R729 68K
R730 2K
R711 0
(H: IN1, L:IN2)
R715 100
R714 100
COMP-HS
PC-HS
AD9883-IN_HS
AD9883-IN_RED
AD9883-IN_GREEN
BA7657-SW
AD9883-IN_BLUE
AD9883-IN_VS
PC-VS
COMP-VS
D3.3V
C261 100nF 25V
C250 47uF 6.3V
BD118 CIC21J601NE
IC146
74HCT1G126GV
AD9883-SOG-SW
AD9883-SOG
R330 0
R344 47
ASI-SUB-SOG

6-2-7 HDMI

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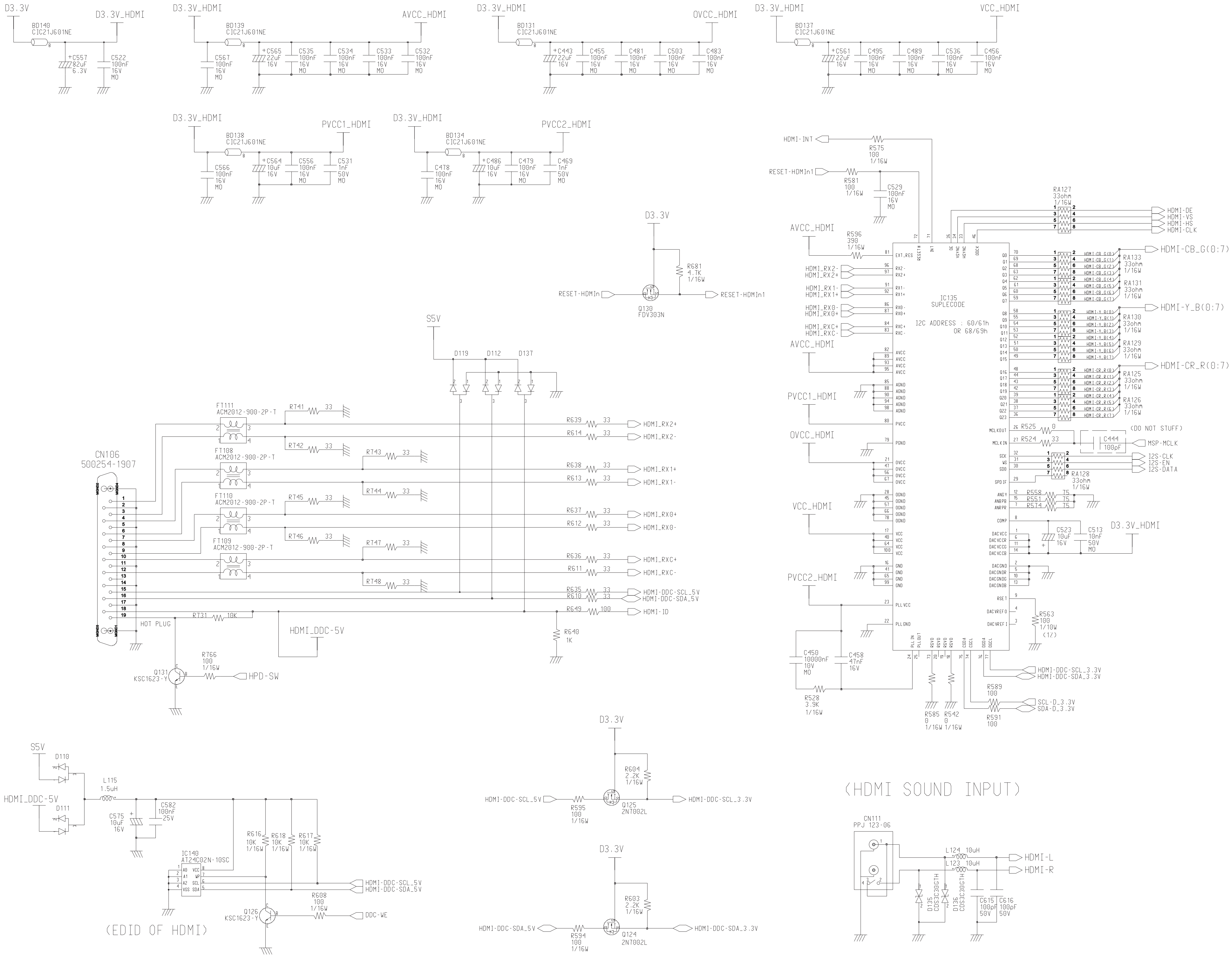
D3.3V
D3.3V_HDMI
AVCC_HDMI
OVCC_HDMI
VCC_HDMI
PVCC1_HDMI
PVCC2_HDMI
BD140
BD139
BD131
BD137
BD138
BD134
CIC21J601NE
S5V
D119
D112
D137
FT111
FT108
FT110
FT109
ACM2012-900-2P-T
CN106
500254-1907
HOT PLUG
HDMI_DDC-5V
Q131
KSC1623-Y
HPD-SW
RESET-HDMIn
RESET-HDMIn1
Q130
FDV303N
HDMI-INT
IC135
SUPLECODE
I2C ADDRESS : 60/61h OR 68/69h
HDMI_RX2+
HDMI_RX2-
HDMI_RX1+
HDMI_RX1-
HDMI_RX0+
HDMI_RX0-
HDMI_RXC+
HDMI_RXC-
HDMI-DDC-SCL_5V
HDMI-DDC-SDA_5V
HDMI-ID
HDMI-DE
HDMI-VS
HDMI-HS
HDMI-CLK
HDMI-CB_G(0:7)
HDMI-Y_B(0:7)
HDMI-CR_R(0:7)
(DO NOT STUFF)
MSP-MCLK
I2S-CLK
I2S-EN
I2S-DATA
HDMI-DDC-SCL_3.3V
HDMI-DDC-SDA_3.3V
SCL-D_3.3V
SDA-D_3.3V
Q125
Q124
2N7002L
IC140
AT24C02N-10SC
Q126
DDC-WE
(EDID OF HDMI)
(HDMI SOUND INPUT)
CN111
PPJ 123-06
HDMI-L
HDMI-R

6-2-8 LVDS_OUTPUT

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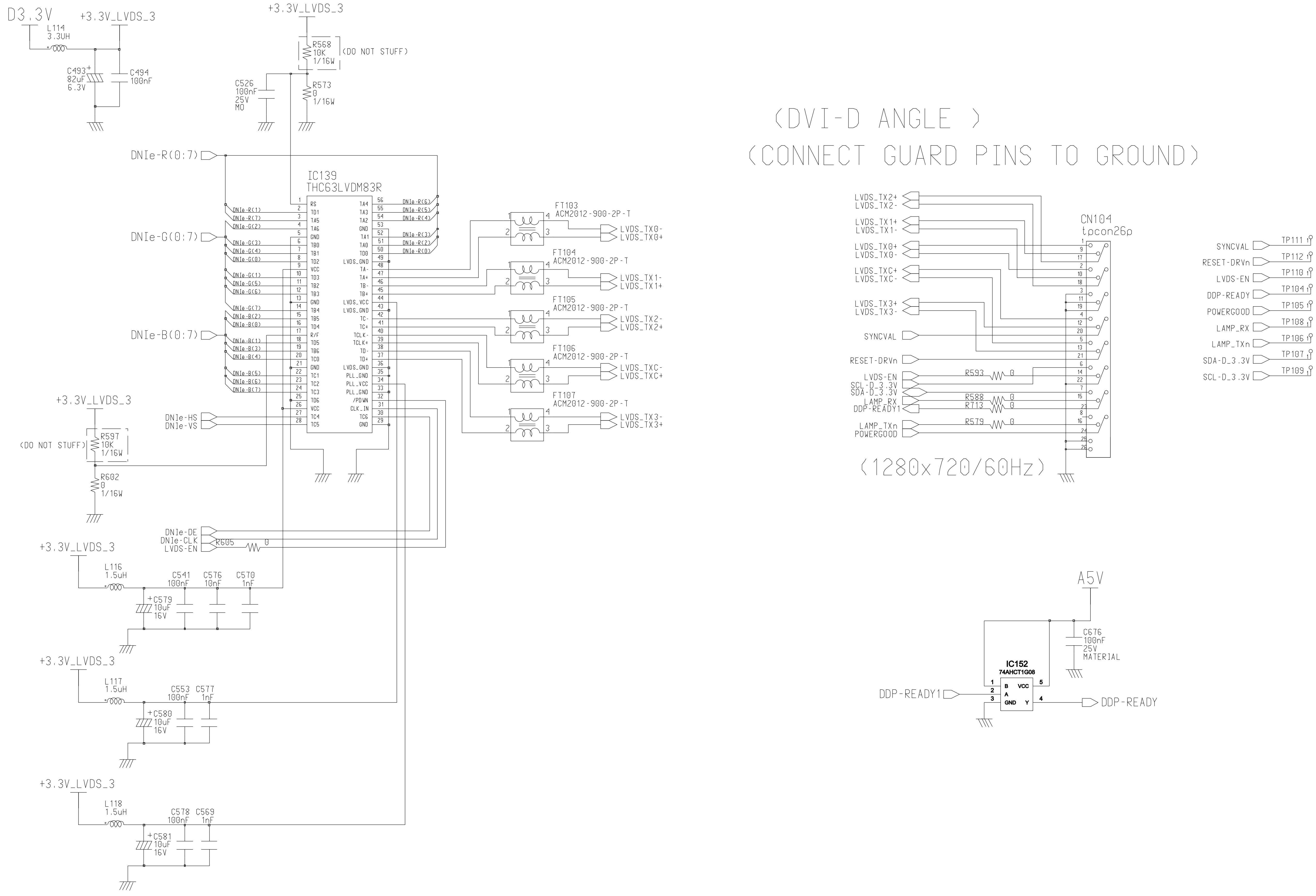
D3.3V
+3.3V_LVDS_3
L114
3.3UH
C493
82uF
6.3V
C494
100nF
R568
10K
1/16W
(DO NOT STUFF)
C526
100nF
25V
MO
R573
0
1/16W
DNIe-R(0:7)
DNIe-G(0:7)
DNIe-B(0:7)
IC139
THC63LVDM83R
FT103
ACM2012-900-2P-T
FT104
ACM2012-900-2P-T
FT105
ACM2012-900-2P-T
FT106
ACM2012-900-2P-T
FT107
ACM2012-900-2P-T
LVDS_TX0-
LVDS_TX0+
LVDS_TX1-
LVDS_TX1+
LVDS_TX2-
LVDS_TX2+
LVDS_TXC-
LVDS_TXC+
LVDS_TX3-
LVDS_TX3+
DNIe-HS
DNIe-VS
R597
10K
1/16W
(DO NOT STUFF)
R602
0
1/16W
DNIe-DE
DNIe-CLK
LVDS-EN
R605
0
L116
1.5uH
C541
100nF
C576
10nF
C570
1nF
C579
10uF
16V
L117
1.5uH
C553
100nF
C577
1nF
C580
10uF
16V
L118
1.5uH
C578
100nF
C569
1nF
C581
10uF
16V
(DVI-D ANGLE)
(CONNECT GUARD PINS TO GROUND)
LVDS_TX2+
LVDS_TX2-
LVDS_TX1+
LVDS_TX1-
LVDS_TX0+
LVDS_TX0-
LVDS_TXC+
LVDS_TXC-
LVDS_TX3+
LVDS_TX3-
SYNCVAL
RESET-DRVn
LVDS-EN
SCL-D_3.3V
SDA-D_3.3V
LAMP_RX
DDP-READY1
LAMP_TXn
POWERGOOD
R593 0
R588 0
R713 0
R579 0
CN104
tpcon26p
(1280x720/60Hz)
SYNCVAL
RESET-DRVn
LVDS-EN
DDP-READY
POWERGOOD
LAMP_RX
LAMP_TXn
SDA-D_3.3V
SCL-D_3.3V
TP111
TP112
TP110
TP104
TP105
TP108
TP106
TP107
TP109
A5V
C676
100nF
25V
MATERIAL
IC152
74AHCT1G08
DDP-READY1
DDP-READY

6-2-9 SDA6001

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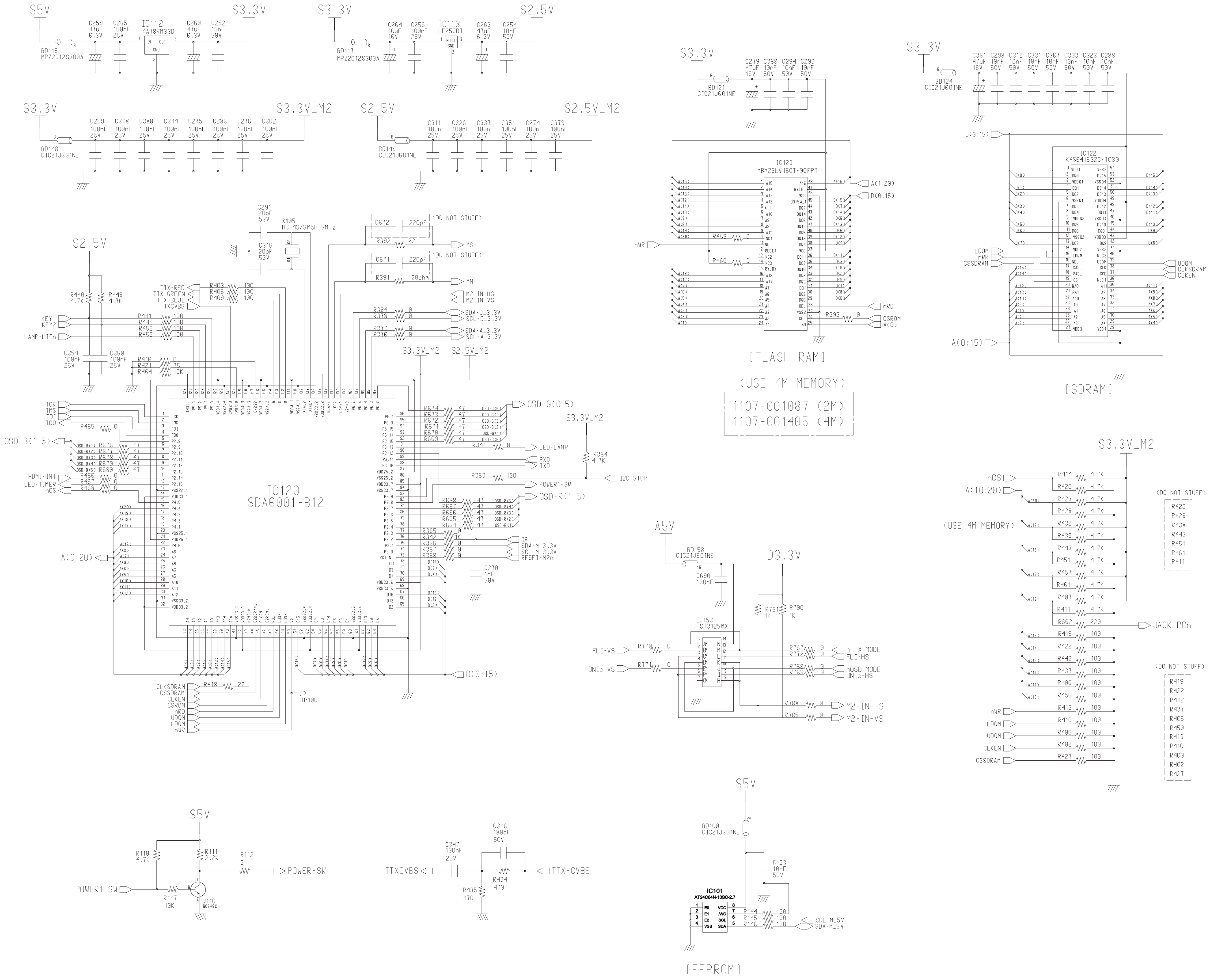
S5V
S3.3V
IC112
KA78RM33D
BD115
MPZ2012S300A
S3.3V
S2.5V
IC113
LF25CDT
BD117
MPZ2012S300A
S3.3V
S3.3V_M2
BD148
CIC21J601NE
S2.5V
S2.5V_M2
BD149
CIC21J601NE
S3.3V
BD121
CIC21J601NE
S3.3V
BD124
CIC21J601NE
IC123
MBM29LV160T-90FPT
[FLASH RAM]
(USE 4M MEMORY)
1107-001087 (2M)
1107-001405 (4M)
IC122
K4S641632C-TC80
[SDRAM]
D(0:15)
A(1:20)
A(0:15)
nWR
nRD
CSROM
A(0)
LDQM
UDQM
CLKSDRAM
CSSDRAM
CLKEN
C291 20pF 50V
X105 HC-49/SM5H 6MHz
C316 20pF 50V
C672 220pF (DO NOT STUFF)
C671 220pF (DO NOT STUFF)
R392 22
R391 120ohm
YS
YM
S2.5V
TTX-RED
TTX-GREEN
TTX-BLUE
TTXCVBS
M2-IN-HS
M2-IN-VS
SDA-D_3.3V
SCL-D_3.3V
SDA-A_3.3V
SCL-A_3.3V
KEY1
KEY2
LAMP-LITn
S3.3V_M2
S2.5V_M2
TCK
TMS
TDI
TDO
OSD-B(1:5)
HDMI-INT
LED-TIMER
nCS
OSD-G(0:5)
LED-LAMP
RXD
TXD
S3.3V_M2
R364 4.7K
I2C-STOP
POWER1-SW
OSD-R(1:5)
IR
SDA-M_3.3V
SCL-M_3.3V
RESET-M2n
C270 1nF 50V
IC120
SDA6001-B12
A(0:20)
D(0:15)
CLKSDRAM
CSSDRAM
CLKEN
CSROM
nRD
UDQM
LDQM
nWR
R418 22
TP100
A5V
BD158
CIC21J601NE
C690 100nF
D3.3V
R791 1K
R790 1K
IC153
FST3125MX
FLI-VS
R770 0
DNIe-VS
R771 0
nTTX-MODE
FLI-HS
nOSD-MODE
DNIe-HS
R388 0
M2-IN-HS
R385 0
M2-IN-VS
S3.3V_M2
nCS
A(10:20)
(USE 4M MEMORY)
(DO NOT STUFF)
R420 R428 R438 R443 R451 R461 R411
R662 220
JACK_PCn
(DO NOT STUFF)
R419 R422 R442 R437 R406 R450 R413 R410 R400 R402 R427
nWR
LDQM
UDQM
CLKEN
CSSDRAM
S5V
R110 4.7K
R111 2.2K
R112 0
POWER-SW
POWER1-SW
R147 10K
Q110
BC848C
C347 100nF 25V
C346 180pF 50V
TTXCVBS
R434 470
TTX-CVBS
R435 470
S5V
BD100
CIC21J601NE
C103 10nF 50V
IC101
AT24C64N-10SC-2.7
R144 100
R145 100
R146 100
SCL-M_5V
SDA-M_5V
[EEPROM]

6-2-10 SDA6001_SUB

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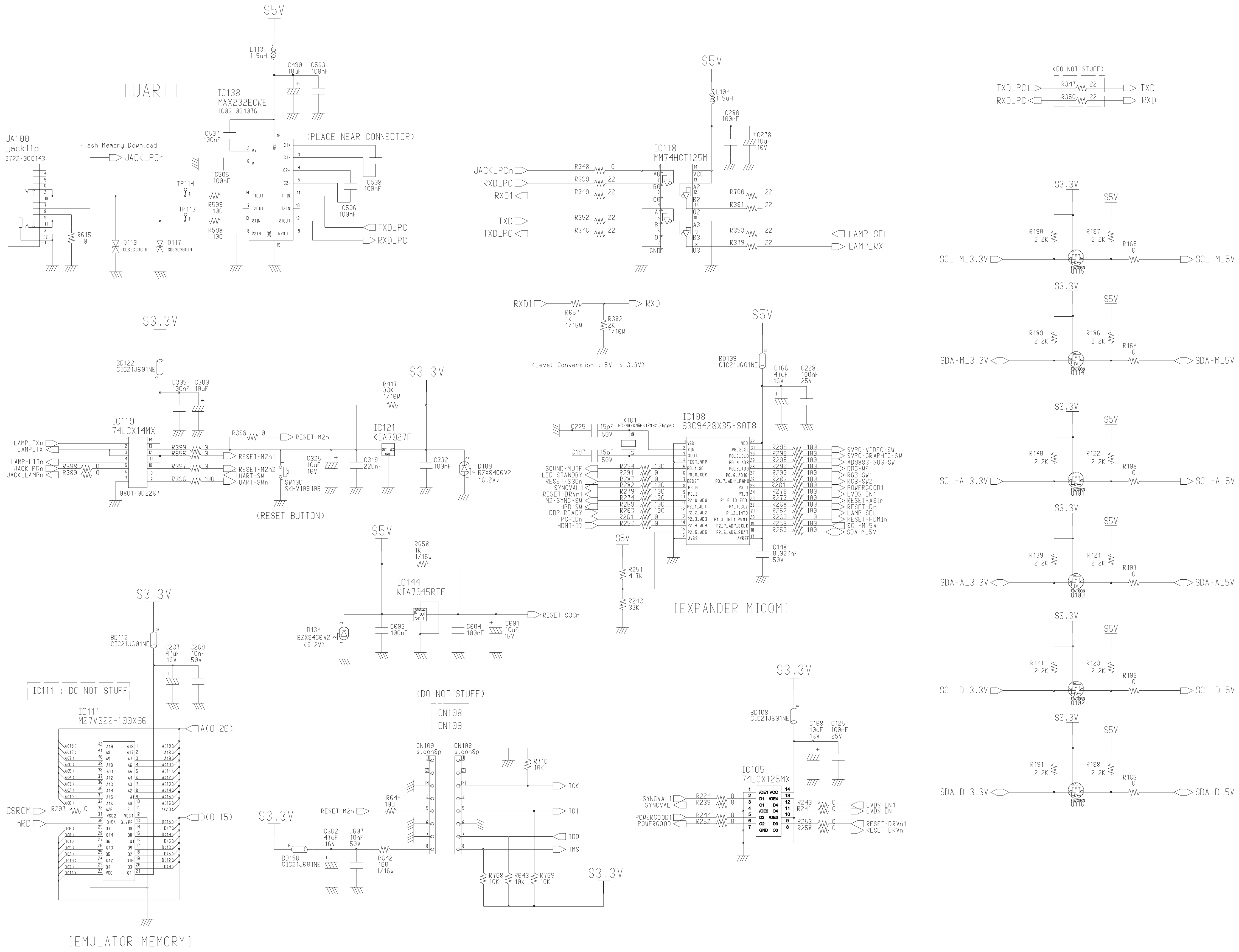
[UART]
IC138
MAX232ECWE
(PLACE NEAR CONNECTOR)
JA100
jack11p
Flash Memory Download
JACK_PCn
TXD_PC
RXD_PC
S5V
S3.3V
IC118
MM74HCT125M
LAMP-SEL
LAMP_RX
(DO NOT STUFF)
TXD
RXD
SCL-M_3.3V
SCL-M_5V
SDA-M_3.3V
SDA-M_5V
SCL-A_3.3V
SCL-A_5V
SDA-A_3.3V
SDA-A_5V
SCL-D_3.3V
SCL-D_5V
SDA-D_3.3V
SDA-D_5V
(Level Conversion : 5V -> 3.3V)
IC119
74LCX14MX
IC121
KIA7027F
RESET-M2n
RESET-M2n1
RESET-M2n2
UART-SW
UART-SWn
SW100
(RESET BUTTON)
IC108
S3C9428X35-S0T8
[EXPANDER MICOM]
IC144
KIA7045RTF
RESET-S3Cn
IC111 : DO NOT STUFF
IC111
M27V322-100XS6
A(0:20)
D(0:15)
CSROM
nRD
[EMULATOR MEMORY]
CN108
CN109
TCK
TDI
TDO
TMS
IC105
74LCX125MX
LVDS-EN1
LVDS-EN
RESET-DRVn1
RESET-DRVn

6-2-10 ASI510

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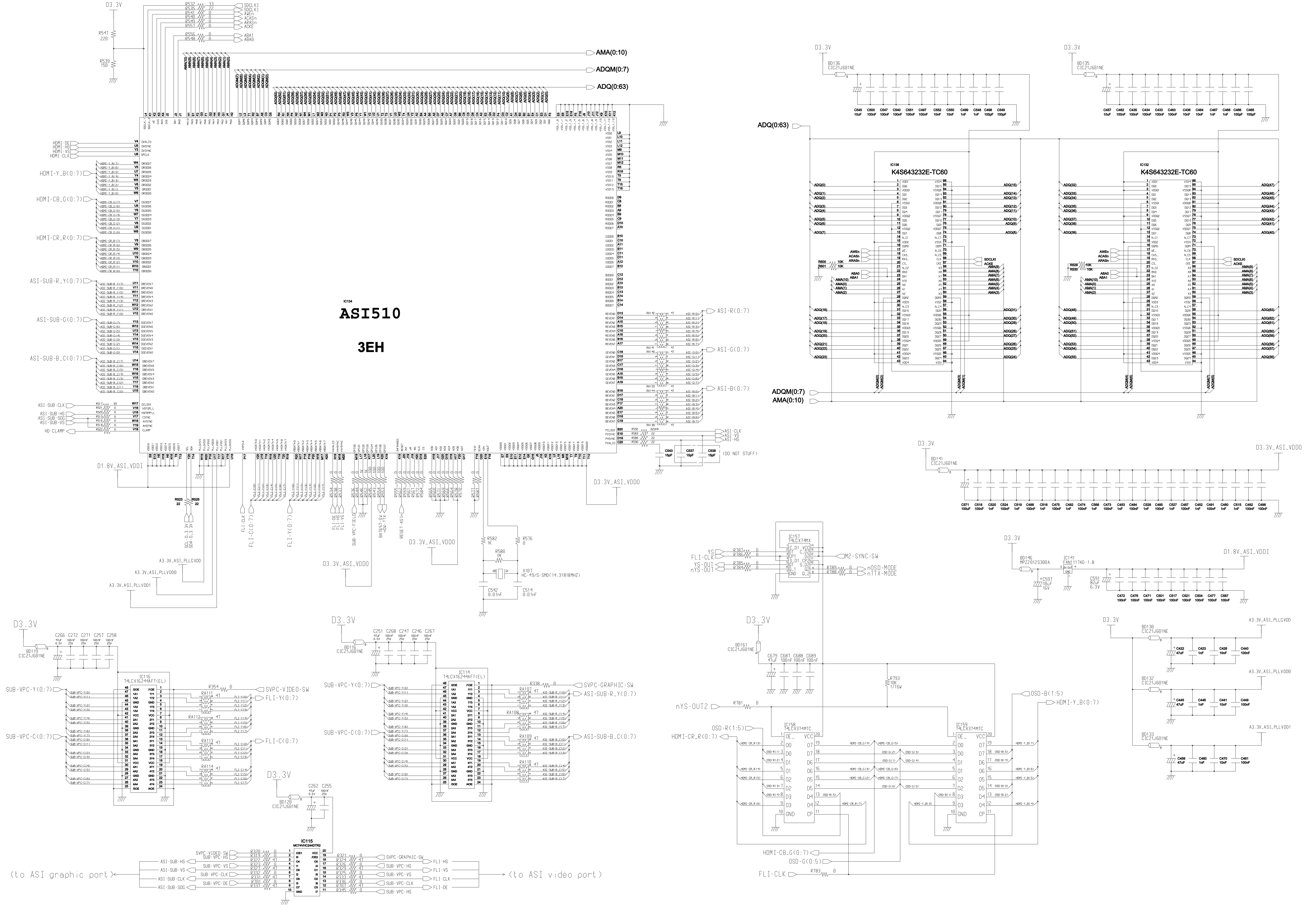
IC134
ASI510
3EH
IC136
K4S643232E-TC60
IC132
K4S643232E-TC60
AMA(0:10)
ADQM(0:7)
ADQ(0:63)
HDMI-Y_B(0:7)
HDMI-CB_G(0:7)
HDMI-CR_R(0:7)
ASI-SUB-R_Y(0:7)
ASI-SUB-G(0:7)
ASI-SUB-B_C(0:7)
ASI-R(0:7)
ASI-G(0:7)
ASI-B(0:7)
D1.8V_ASI_VDDI
D3.3V_ASI_VDDO
D3.3V
A3.3V_ASI_PLLGVDD
A3.3V_ASI_PLLVDD0
A3.3V_ASI_PLLVDD1
X107
HC-49/S-SMD(14.31818MHZ)
(DO NOT STUFF)
IC116
74LCX16244AFT(EL)
IC114
74LCX16244AFT(EL)
IC115
MC74VHC244DTR2
SUB-VPC-Y(0:7)
SUB-VPC-C(0:7)
SVPC-VIDEO-SW
SVPC-GRAPHIC-SW
FLI-Y(0:7)
FLI-C(0:7)
(to ASI graphic port)
(to ASI video port)
IC157
74LCX74MX
IC158
74LCX374MTC
IC159
74LCX374MTC
M2-SYNC-SW
nOSD-MODE
nTTX-MODE
OSD-B(1:5)
OSD-R(1:5)
OSD-G(0:5)
nYS-OUT2
FLI-CLK
IC141
FAN1117AD-1.8

6-2-11 DNIe_Pro

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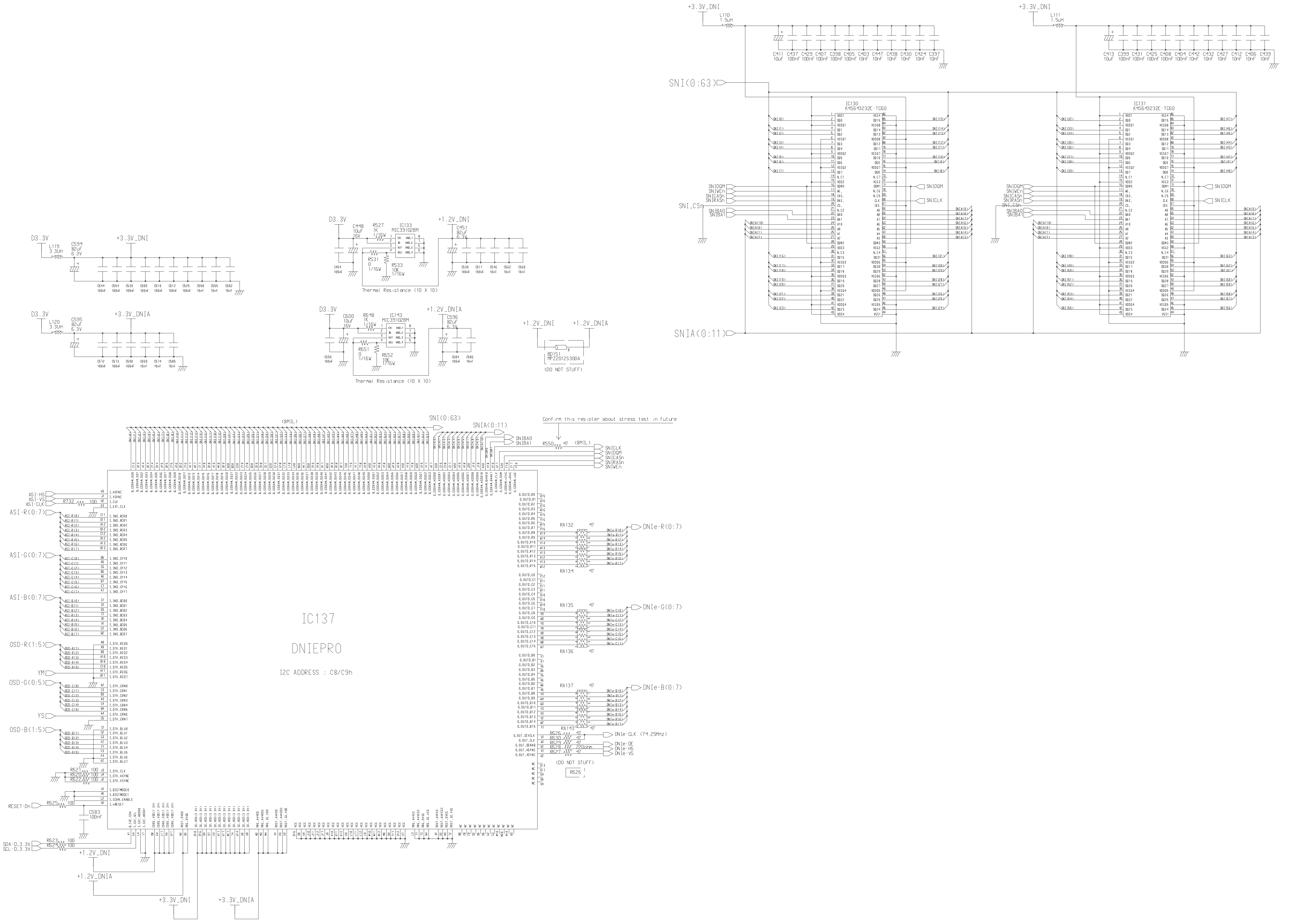
+3.3V_DNI
L110
1.5uH
SNI(0:63)
IC130
K4S643232E-TC60
SNIDQM
SNIWEn
SNICASn
SNIRASn
SNI_CSn
SNIBA0
SNIBA1
SNICLK
SNIA(0:11)
L111
1.5uH
IC131
K4S643232E-TC60
D3.3V
L119
3.3UH
C594
82uF
6.3V
+3.3V_DNI
L120
3.3UH
C595
82uF
6.3V
+3.3V_DNIA
C448
10uF
16V
R527
1K
1/16W
IC133
MIC39102BM
R531
0
1/16W
R533
10K
1/16W
+1.2V_DNI
C451
82uF
6.3V
Thermal Resistance (10 X 10)
C600
10uF
16V
R548
1K
1/16W
IC143
MIC39102BM
R551
0
1/16W
R552
10K
1/16W
+1.2V_DNIA
C596
82uF
6.3V
Thermal Resistance (10 X 10)
+1.2V_DNI
+1.2V_DNIA
BD151
MPZ2012S300A
(DO NOT STUFF)
(8MIL)
SNI(0:63)
SNIA(0:11)
Confirm this resister about stress test in future
SNIBA0
SNIBA1
R550
47
(8MIL)
SNICLK
SNIDQM
SNICASn
SNIRASn
SNIWEn
ASI-HS
ASI-VS
ASI-CLK
R732
100
ASI-R(0:7)
ASI-G(0:7)
ASI-B(0:7)
OSD-R(1:5)
YM
OSD-G(0:5)
YS
OSD-B(1:5)
R521
R520
R522
100
RESET-On
R525
100
C583
100nF
SDA-D_3.3V
SCL-D_3.3V
R523
R524
100
+1.2V_DNI
+1.2V_DNIA
+3.3V_DNI
+3.3V_DNIA
IC137
DNIEPRO
I2C ADDRESS : C8/C9h
RA132
47
DNIe-R(0:7)
RA134
47
RA135
47
DNIe-G(0:7)
RA136
47
RA137
47
DNIe-B(0:7)
RA143
47
R528
47
DNIe-CLK (74.25MHz)
R530
47
R529
47
DNIe-DE
R532
220ohm
DNIe-HS
R527
47
DNIe-VS
(DO NOT STUFF)
R526

6-3 DMD

6-3-1 SIL151

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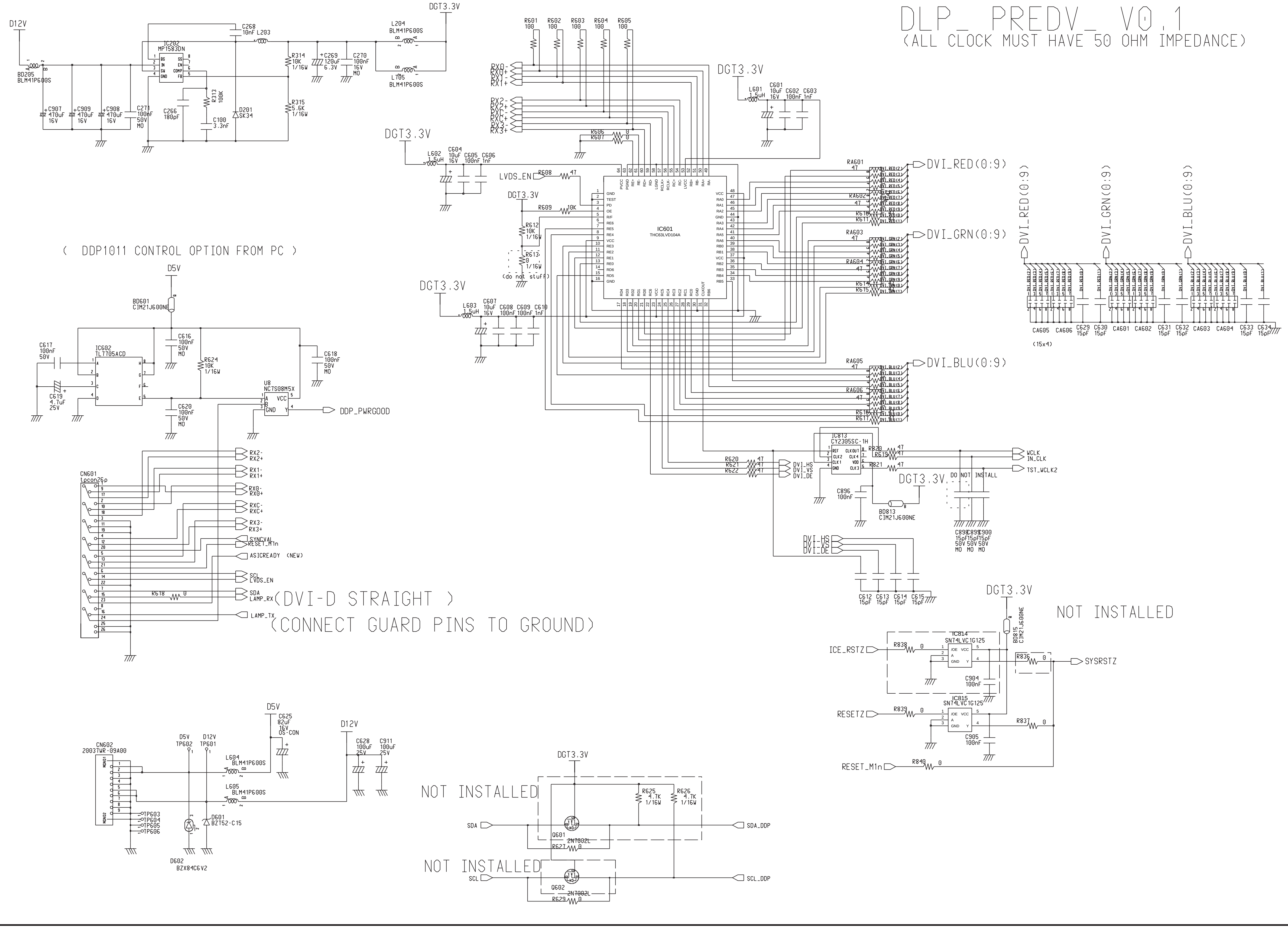
DLP_ PREDV_ V0.1
(ALL CLOCK MUST HAVE 50 OHM IMPEDANCE)
D12V
DGT3.3V
IC202
MP1583DN
BD205
BLM41P600S
L204
BLM41P600S
L105
BLM41P600S
D201
SK34
RX0-
RX0+
RX1-
RX1+
RX2-
RX2+
RXC-
RXC+
RX3-
RX3+
IC601
THC63LVD104A
LVDS_EN
(do not stuff)
DVI_RED(0:9)
DVI_GRN(0:9)
DVI_BLU(0:9)
(DDP1011 CONTROL OPTION FROM PC)
D5V
BD601
CIM21J600NE
IC602
TL7705ACD
U8
NC7S08M5X
DDP_PWRGOOD
CN601
tocon26p
SYNCVAL
RESET_M1n
ASICREADY (NEW)
SCL
LVDS_EN
SDA
LAMP_RX
LAMP_TX
(DVI-D STRAIGHT)
(CONNECT GUARD PINS TO GROUND)
IC813
CY2305SC-1H
WCLK
IN_CLK
TST_WCLK2
DVI_HS
DVI_VS
DVI_DE
DO NOT INSTALL
BD813
CIM21J600NE
NOT INSTALLED
BD815
CIM21J600NE
IC814
SN74LVC1G125
ICE_RSTZ
SYSRSTZ
IC815
SN74LVC1G125
RESETZ
RESET_M1n
CN602
2003TWR-09A00
TP602
TP601
L604
BLM41P600S
L605
BLM41P600S
D601
BZT52-C15
D602
BZX84C6V2
TP603
TP604
TP605
TP606
NOT INSTALLED
Q601
2N7002L
Q602
2N7002L
SDA
SDA_DDP
SCL
SCL_DDP

6-3-2 FPGA

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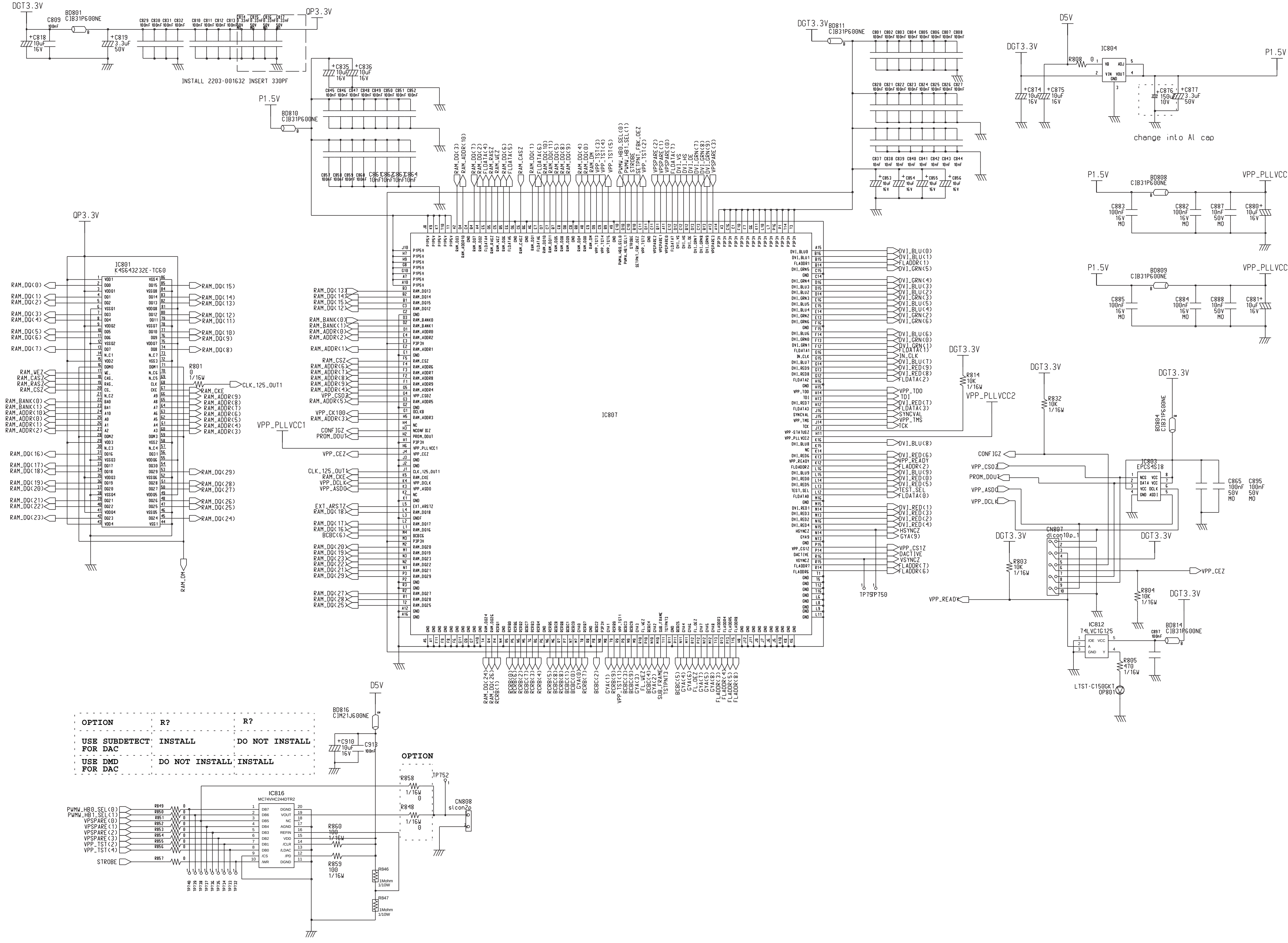
DGT3.3V
BD801
CIB31P600NE
C809
C818
C819
INSTALL 2203-001632 INSERT 330PF
QP3.3V
P1.5V
BD810
CIB31P600NE
C835
C836
DGT3.3V
BD811
CIB31P600NE
D5V
IC804
R808
P1.5V
C874
C875
C876
C877
change into Al cap
P1.5V
BD808
CIB31P600NE
VPP_PLLVCC2
C883
C882
C887
C880
P1.5V
BD809
CIB31P600NE
VPP_PLLVCC1
C885
C884
C888
C881
QP3.3V
IC801
K4S643232E-TC60
RAM_DQ(0)
RAM_DQ(1)
RAM_DQ(2)
RAM_DQ(3)
RAM_DQ(4)
RAM_DQ(5)
RAM_DQ(6)
RAM_DQ(7)
RAM_WEZ
RAM_CASZ
RAM_RASZ
RAM_CSZ
RAM_BANK(0)
RAM_BANK(1)
RAM_ADDR(10)
RAM_ADDR(0)
RAM_ADDR(1)
RAM_ADDR(2)
RAM_DQ(16)
RAM_DQ(17)
RAM_DQ(18)
RAM_DQ(19)
RAM_DQ(20)
RAM_DQ(21)
RAM_DQ(22)
RAM_DQ(23)
RAM_DQ(15)
RAM_DQ(14)
RAM_DQ(13)
RAM_DQ(12)
RAM_DQ(11)
RAM_DQ(10)
RAM_DQ(9)
RAM_DQ(8)
R801
CLK_125_OUT1
RAM_CKE
RAM_ADDR(9)
RAM_ADDR(8)
RAM_ADDR(7)
RAM_ADDR(6)
RAM_ADDR(5)
RAM_ADDR(4)
RAM_ADDR(3)
RAM_DQ(29)
RAM_DQ(28)
RAM_DQ(27)
RAM_DQ(26)
RAM_DQ(25)
RAM_DQ(24)
RAM_DM
IC807
VPP_PLLVCC1
VPP_CEZ
CONFIGZ
PROM_DOUT
VPP_CK100
EXT_ARSTZ
DVI_BLU(0)
DVI_BLU(1)
FLADDR(1)
DVI_GRN(5)
DVI_GRN(4)
DVI_BLU(3)
DVI_BLU(2)
DVI_GRN(3)
DVI_BLU(5)
DVI_BLU(4)
DVI_GRN(2)
DVI_GRN(6)
DVI_BLU(6)
DVI_GRN(0)
DVI_GRN(1)
FLDATA(1)
IN_CLK
DVI_BLU(7)
DVI_RED(9)
DVI_RED(8)
FLDATA(2)
VPP_TDO
TDI
DVI_RED(7)
FLDATA(3)
SYNCVAL
VPP_TMS
TCK
DVI_BLU(8)
DVI_RED(6)
VPP_READY
FLADDR(2)
DVI_BLU(9)
DVI_RED(0)
DVI_RED(5)
TEST_SEL
FLDATA(0)
DVI_RED(1)
DVI_RED(3)
DVI_RED(2)
DVI_RED(4)
HSYNCZ
GYA(9)
VPP_CS1Z
DACTIVE
VSYNCZ
FLADDR(7)
FLADDR(6)
TP751
TP750
DGT3.3V
R814
VPP_PLLVCC2
DGT3.3V
R832
DGT3.3V
BD804
CIB31P600NE
CONFIGZ
VPP_CSOZ
PROM_DOUT
VPP_ASDO
VPP_DCLK
IC803
EPCS4SI8
C865
C895
DGT3.3V
R803
CN807
dlcon10p_1
DGT3.3V
VPP_CEZ
VPP_READY
R804
DGT3.3V
IC812
74LVC1G125
BD814
CIB31P600NE
R805
LTST-C150GKT
OP801
D5V
BD816
CIM21J600NE
C910
C913
OPTION
R858
R848
TP752
CN808
slcon2p
IC816
MC74VHC244DTR2
R849
R850
R851
R852
R853
R854
R855
R857
PWMW_HB0_SEL(0)
PWMW_HB1_SEL(1)
VPSPARE(0)
VPSPARE(1)
VPSPARE(2)
VPSPARE(3)
VPP_TST(2)
VPP_TST(4)
STROBE
R860
R859
R846
R847

OPTION	R?	R?
USE SUBDETECT FOR DAC	INSTALL	DO NOT INSTALL
USE DMD FOR DAC	DO NOT INSTALL	INSTALL

6-3-3 FLASH

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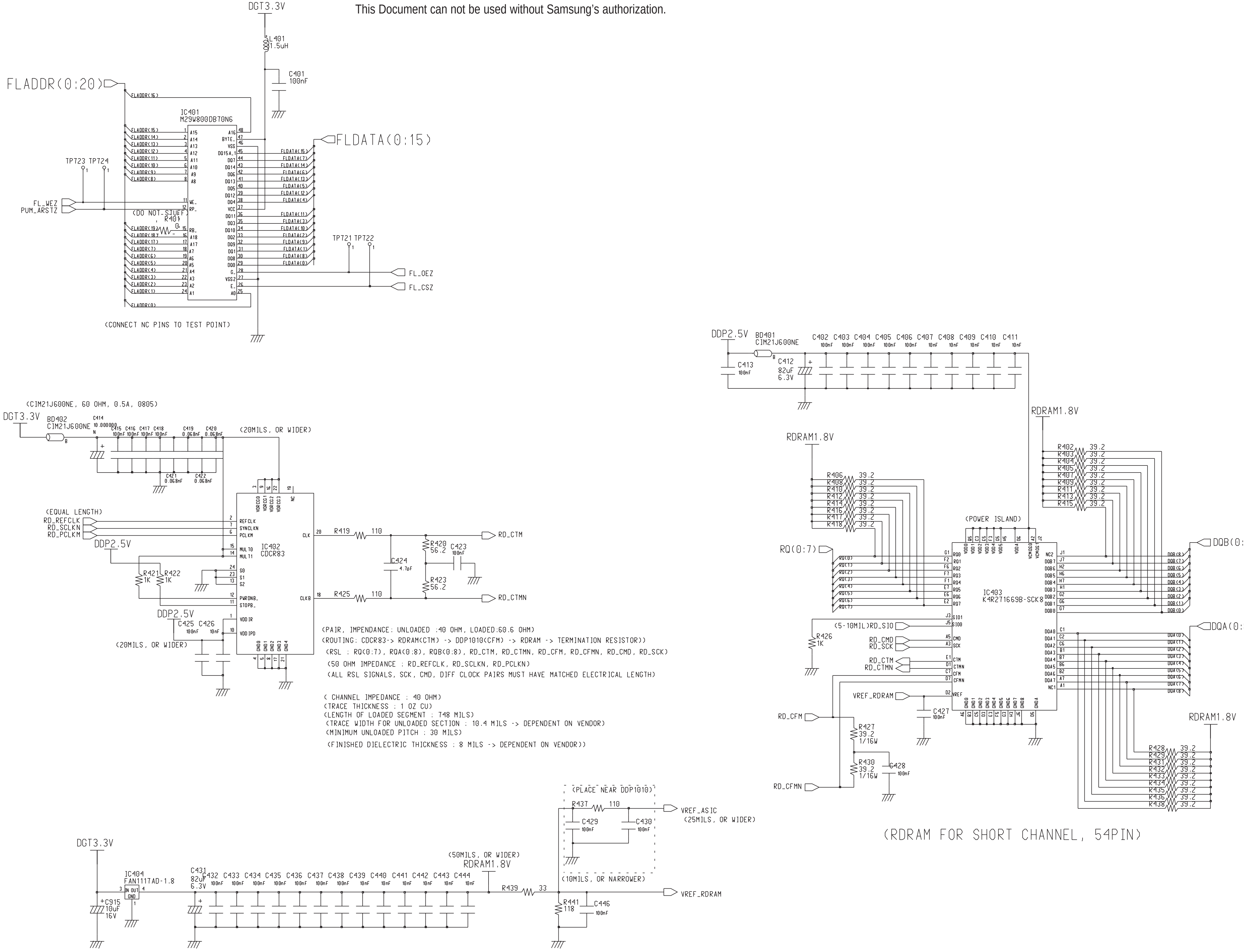
DGT3.3V
L401 1.5uH
C401 100nF
FLADDR(0:20)
IC401 M29W800DB70N6
FLDATA(0:15)
TPT23 TPT24
FL_WEZ
PUM_ARSTZ
(DO NOT-STUFF)
R401
TPT21 TPT22
FL_OEZ
FL_CSZ
(CONNECT NC PINS TO TEST POINT)
DDP2.5V
BD401 CIM21J600NE
C402 C403 C404 C405 C406 C407 C408 C409 C410 C411
C413 100nF
C412 82uF 6.3V
RDRAM1.8V
R402 - R415 39.2
R406 - R418 39.2
RQ(0:7)
(POWER ISLAND)
IC403 K4R271669B-SCK8
DQB(0:8)
DQA(0:8)
(5-10MIL)RD_SIO
R426 1K
RD_CMD
RD_SCK
RD_CTM
RD_CTMN
VREF_RDRAM
C427 100nF
RD_CFM
R427 39.2 1/16W
R430 39.2 1/16W
C428 100nF
RD_CFMN
R428 - R438 39.2
(RDRAM FOR SHORT CHANNEL, 54PIN)
(CIM21J600NE, 60 OHM, 0.5A, 0805)
DGT3.3V
BD402 CIM21J600NE
C414 C415 C416 C417 C418 C419 C420
C421 0.068nF
C422 0.068nF
(20MILS, OR WIDER)
(EQUAL LENGTH)
RD_REFCLK
RD_SCLKN
RD_PCLKM
DDP2.5V
IC402 CDCR83
R421 1K
R422 1K
R419 110
R420 56.2
C423 100nF
C424 4.7pF
R423 56.2
R425 110
RD_CTM
RD_CTMN
DDP2.5V
C425 100nF
C426 10nF
(20MILS, OR WIDER)
(PAIR, IMPENDANCE: UNLOADED :40 OHM, LOADED:60.6 OHM)
(ROUTING: CDCR83-> RDRAM(CTM) -> DDP1010(CFM) -> RDRAM -> TERMINATION RESISTOR))
(RSL : RQ(0:7), RQA(0:8), RQB(0:8), RD_CTM, RD_CTMN, RD_CFM, RD_CFMN, RD_CMD, RD_SCK)
(50 OHM IMPEDANCE : RD_REFCLK, RD_SCLKN, RD_PCLKN)
(ALL RSL SIGNALS, SCK, CMD, DIFF CLOCK PAIRS MUST HAVE MATCHED ELECTRICAL LENGTH)
(CHANNEL IMPEDANCE : 40 OHM)
(TRACE THICKNESS : 1 OZ CU)
(LENGTH OF LOADED SEGMENT : 748 MILS)
(TRACE WIDTH FOR UNLOADED SECTION : 10.4 MILS -> DEPENDENT ON VENDOR)
(MINIMUM UNLOADED PITCH : 30 MILS)
(FINISHED DIELECTRIC THICKNESS : 8 MILS -> DEPENDENT ON VENDOR))
(PLACE NEAR DDP1010)
R437 110
C429 100nF
C430 100nF
VREF_ASIC
(25MILS, OR WIDER)
DGT3.3V
IC404 FAN1117AD-1.8
C915 10uF 16V
C431 82uF 6.3V
C432 C433 C434 C435 C436 C437 C438 C439 C440 C441 C442 C443 C444
(50MILS, OR WIDER)
RDRAM1.8V
R439 33
(10MILS, OR NARROWER)
VREF_RDRAM
R441 118
C446 100nF

6-3-4 DAD1000

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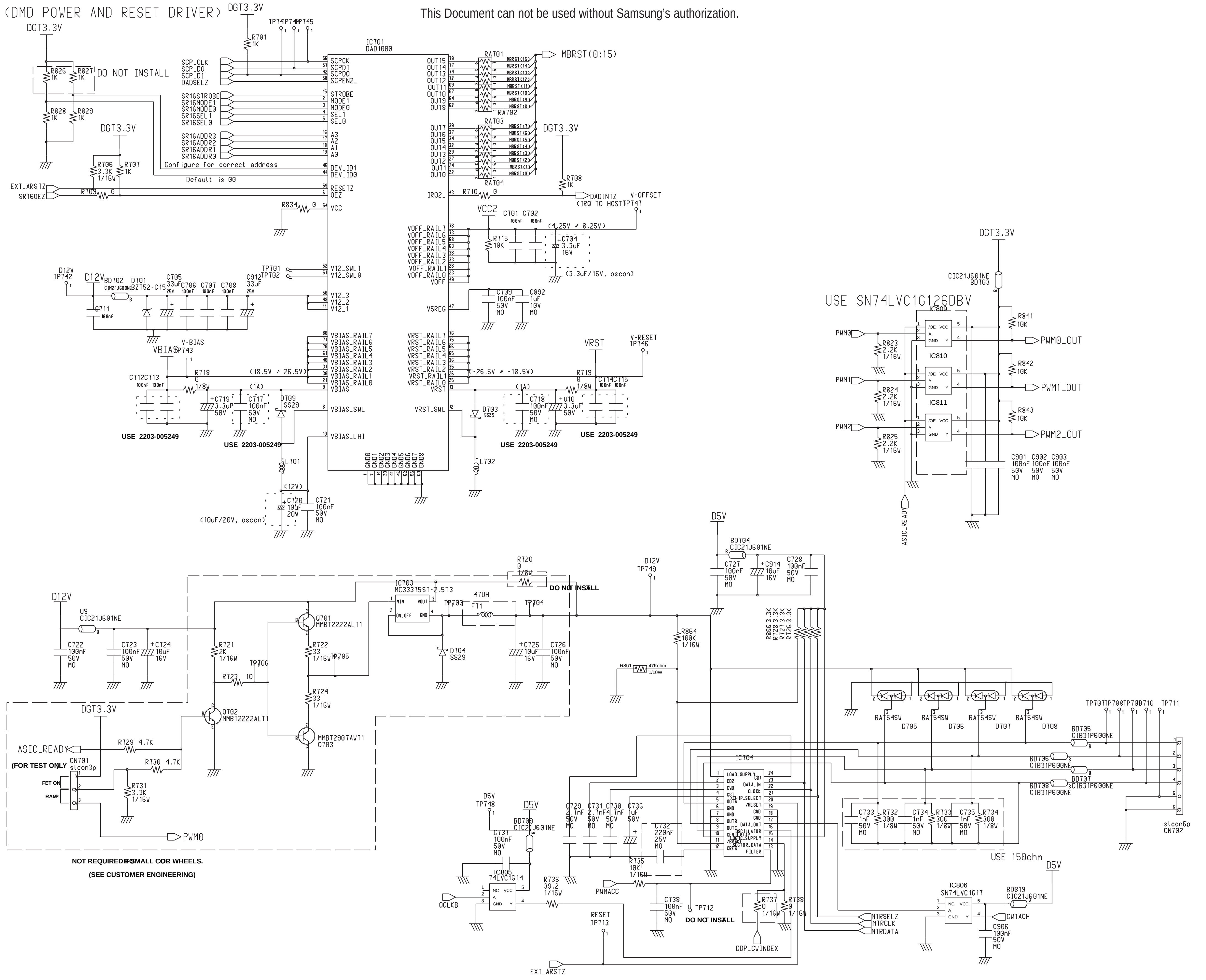
(DMD POWER AND RESET DRIVER)
DGT3.3V
IC701
DAD1000
SCP_CLK
SCP_DO
SCP_DI
DADSELZ
SR16STROBE
SR16MODE1
SR16MODE0
SR16SEL1
SR16SEL0
SR16ADDR3
SR16ADDR2
SR16ADDR1
SR16ADDR0
Configure for correct address
Default is 00
EXT_ARSTZ
SR16OEZ
DO NOT INSTALL
R826 1K
R827 1K
R828 1K
R829 1K
R706 3.3K 1/16W
R707 1K
R709 0
R834 0
R701 1K
TP741 TP744 TP745
MBRST(0:15)
RA701
RA702
RA703
RA704
R708 1K
R710 0
DADINTZ
(IRQ TO HOST)
V-OFFSET
TP747
VCC2
C701 C702
(4.25V ~ 8.25V)
R715 10K
C704 3.3uF 16V
(3.3uF/16V, oscon)
D12V
TP742
BD702
D701 BZT52-C15
C705 33uF 25V
C706 C707 C708
C912 33uF 25V
TP701 TP702
C711
VBIAS
V-BIAS
TP743
C712 C713
R718 0 1/8W
(18.5V ~ 26.5V)
(1A)
C719 3.3uF 50V
C717 100nF 50V MO
D709 SS29
USE 2203-005249
L701
(12V)
C720 10uF 20V
C721 100nF 50V MO
(10uF/20V, oscon)
C709 100nF 50V MO
C892 1uF 10V MO
V5REG
VRST
V-RESET
TP746
(-26.5V ~ -18.5V)
R719 0 1/8W
C714 C715
C718 100nF 50V MO
U10 3.3uF 50V
D703 SS29
L702
DGT3.3V
CIC21J601NE
BD703
USE SN74LVC1G126DBV
IC809
IC810
IC811
PWM0
PWM1
PWM2
R823 2.2K 1/16W
R824 2.2K 1/16W
R825 2.2K 1/16W
R841 10K
R842 10K
R843 10K
PWM0_OUT
PWM1_OUT
PWM2_OUT
C901 C902 C903 100nF 50V MO
ASIC_READY
D12V
U9 CIC21J601NE
C722 100nF 50V MO
C723 100nF 50V MO
C724 10uF 16V
RT20 0 1/8W
DO NOT INSTALL
IC703 MC33375ST-2.5T3
47UH
FT1
TP703
TP704
D12V TP749
Q701 MMBT2222ALT1
R721 2K 1/16W
R722 33 1/16W
TP705
TP706
R723 10
R724 33 1/16W
D704 SS29
C725 10uF 16V
C726 100nF 50V MO
DGT3.3V
ASIC_READY
(FOR TEST ONLY)
CN701 slcon3p
FET ON
RAMP
R729 4.7K
R730 4.7K
R731 3.3K 1/16W
Q702 MMBT2222ALT1
MMBT2907AWT1 Q703
PWM0
NOT REQUIRED FOR SMALL CORE WHEELS.
(SEE CUSTOMER ENGINEERING)
D5V
BD704 CIC21J601NE
C727 100nF 50V MO
C914 10uF 16V
C728 100nF 50V MO
R864 100K 1/16W
R861 47Kohm 1/10W
R866 3.3K
R728 3.3K
R727 3.3K
R726 3.3K
BAT54SW
D705 D706 D707 D708
TP707 TP708 TP709 TP710 TP711
BD705 CIB31P600NE
BD706 CIB31P600NE
BD707
BD708 CIB31P600NE
slcon6p CN702
IC704
C729 2.7nF 50V MO
C731 2.7nF 50V MO
C730 4.7nF 50V MO
C736 1uF 50V
C732 220nF 25V MO
C733 1nF 50V MO
R732 300 1/8W
C734 1nF 50V MO
R733 300 1/8W
C735 1nF 50V MO
R734 300 1/8W
USE 150ohm
D5V TP748
D5V
BD709 CIC21J601NE
C737 100nF 50V MO
IC805 74LVC1G14
OCLKB
R735 39.2 1/16W
PWMACC
R736 10K 1/16W
C738 100nF 50V MO
TP712
DO NOT INSTALL
RESET TP713
R737 0 1/16W
R738 0 1/16W
DDP_CWINDEX
EXT_ARSTZ
MTRSELZ
MTRCLK
MTRDATA
IC806 SN74LVC1G17
BD819 CIC21J601NE
D5V
CWTACH
C906 100nF 50V MO

6-3-5 DMD

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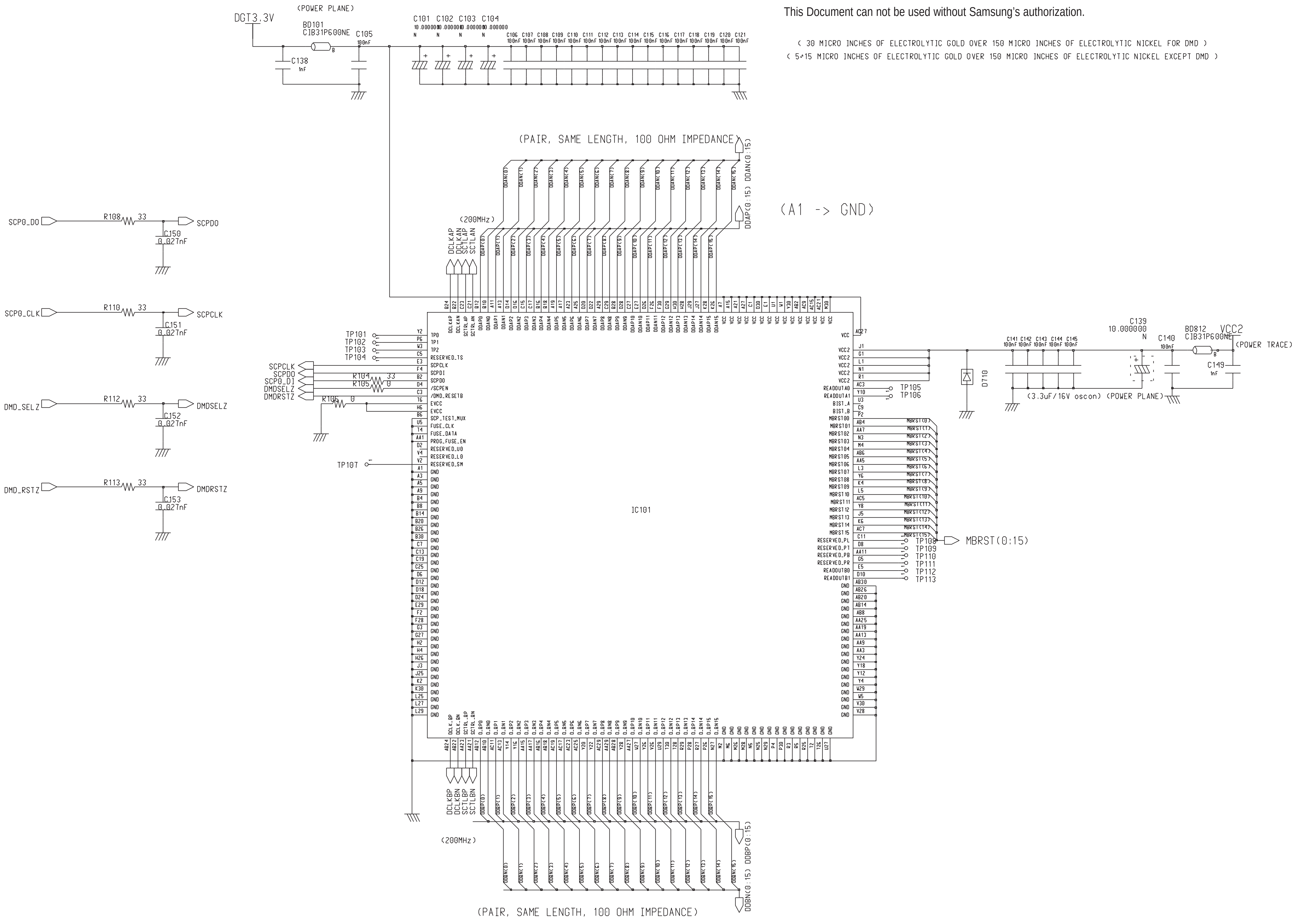
(30 MICRO INCHES OF ELECTROLYTIC GOLD OVER 150 MICRO INCHES OF ELECTROLYTIC NICKEL FOR DMD)
(5~15 MICRO INCHES OF ELECTROLYTIC GOLD OVER 150 MICRO INCHES OF ELECTROLYTIC NICKEL EXCEPT DMD)
DGT3.3V
(POWER PLANE)
BD101
C1B31P600NE
C105 100nF
C138 1nF
C101 C102 C103 C104 10.000000 N
C106 C107 C108 C109 C110 C111 C112 C113 C114 C115 C116 C117 C118 C119 C120 C121 100nF
(PAIR, SAME LENGTH, 100 OHM IMPEDANCE)
DDAN(0:15)
DDAP(0:15)
(A1 -> GND)
(200MHz)
DCLKAP
DCLKAN
SCTLAP
SCTLAN
SCP0_DO R108 33 SCPDO C150 0.027nF
SCP0_CLK R110 33 SCPCLK C151 0.027nF
DMD_SELZ R112 33 DMDSELZ C152 0.027nF
DMD_RSTZ R113 33 DMDRSTZ C153 0.027nF
TP101 TP102 TP103 TP104
SCPCLK SCPDO SCP0_DI DMDSELZ DMDRSTZ
R104 33
R105 0
R106 0
TP107
IC101
VCC2
BD812 C1B31P600NE
(POWER TRACE)
C139 10.000000 N
C140 100nF
C149 1nF
C141 C142 C143 C144 C145 100nF
D710
(3.3uF/16V oscon) (POWER PLANE)
TP105 TP106
MBRST(0:15)
TP108 TP109 TP110 TP111 TP112 TP113
DCLKBP
DCLKBN
SCTLBP
SCTLBN
(200MHz)
DDBP(0:15)
DDBN(0:15)
(PAIR, SAME LENGTH, 100 OHM IMPEDANCE)

6-3-6 CW

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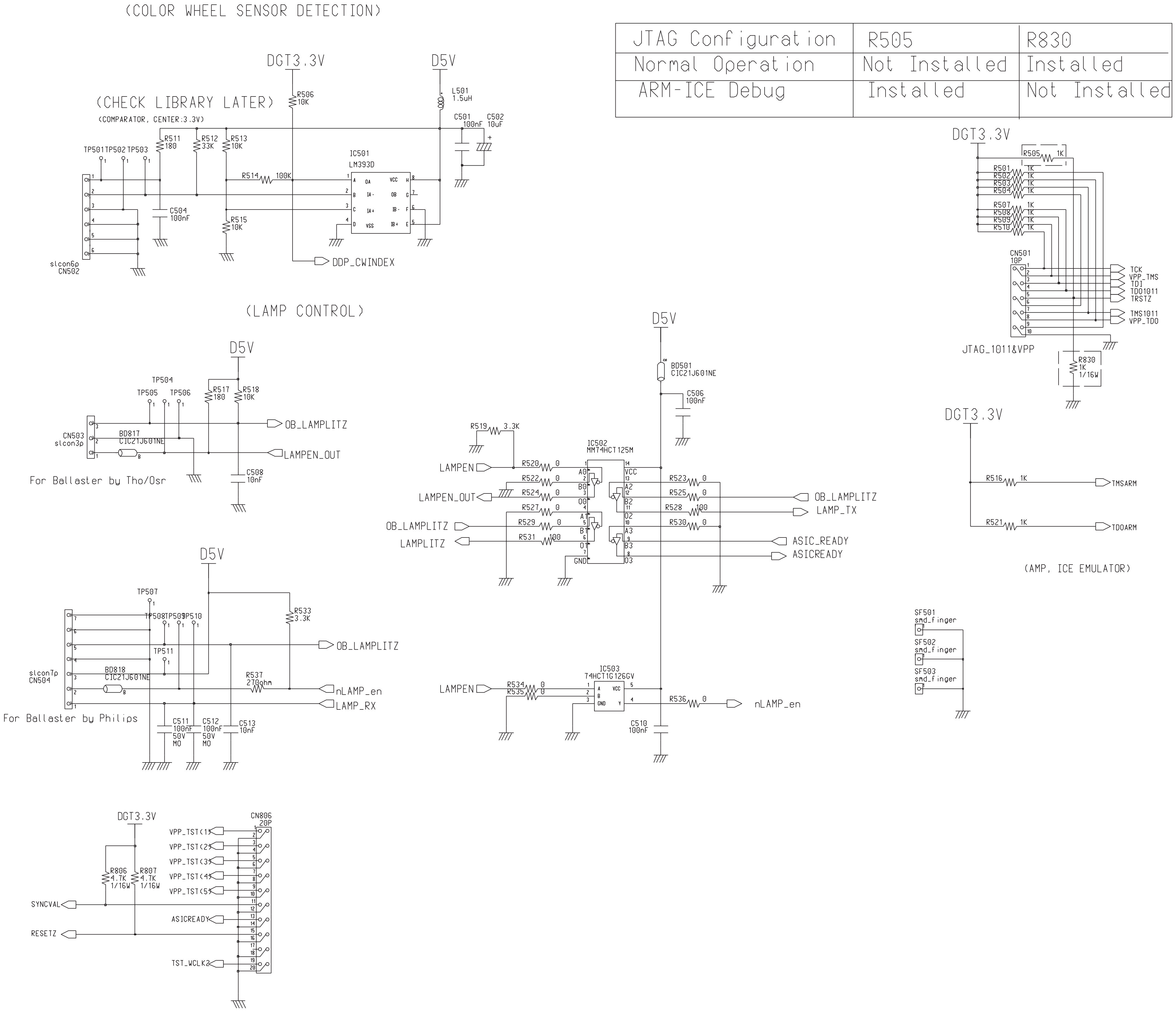
(COLOR WHEEL SENSOR DETECTION)
DGT3.3V
D5V
(CHECK LIBRARY LATER)
(COMPARATOR, CENTER:3.3V)
R506 10K
L501 1.5uH
C501 100nF
C502 10uF
R511 180
R512 33K
R513 10K
TP501 TP502 TP503
R514 100K
IC501 LM393D
C504 100nF
R515 10K
slcon6p CN502
DDP_CWINDEX
(LAMP CONTROL)
TP504 TP505 TP506
R517 180
R518 10K
CN503 slcon3p
BD817 CIC21J601NE
OB_LAMPLITZ
LAMPEN_OUT
C508 10nF
For Ballaster by Tho/Osr
TP507 TP508 TP509 TP510 TP511
R533 3.3K
slcon7p CN504
BD818 CIC21J601NE
R537 270ohm
nLAMP_en
LAMP_RX
C511 100nF 50V MO
C512 100nF 50V MO
C513 10nF
For Ballaster by Philips
BD501 CIC21J601NE
C506 100nF
R519 3.3K
IC502 MM74HCT125M
LAMPEN
LAMPEN_OUT
OB_LAMPLITZ
LAMPLITZ
R520 0
R522 0
R524 0
R527 0
R529 0
R531 100
R523 0
R525 0
R528 100
R530 0
OB_LAMPLITZ
LAMP_TX
ASIC_READY
ASICREADY
IC503 74HCT1G126GV
R534 0
R535 0
R536 0
C510 100nF
nLAMP_en
R505 1K
R501 1K
R502 1K
R503 1K
R504 1K
R507 1K
R508 1K
R509 1K
R510 1K
CN501 10P
TCK
VPP_TMS
TDI
TDO1011
TRSTZ
TMS1011
VPP_TDO
JTAG_1011&VPP
R830 1K 1/16W
R516 1K
TMSARM
R521 1K
TDOARM
(AMP, ICE EMULATOR)
SF501 smd_finger
SF502 smd_finger
SF503 smd_finger
DGT3.3V
CN806 20P
R806 4.7K 1/16W
R807 4.7K 1/16W
VPP_TST<1>
VPP_TST<2>
VPP_TST<3>
VPP_TST<4>
VPP_TST<5>
SYNCVAL
ASICREADY
RESETZ
TST_WCLK2

JTAG Configuration	R505	R830
Normal Operation	Not Installed	Installed
ARM-ICE Debug	Installed	Not Installed

6-4 SUB DETECT

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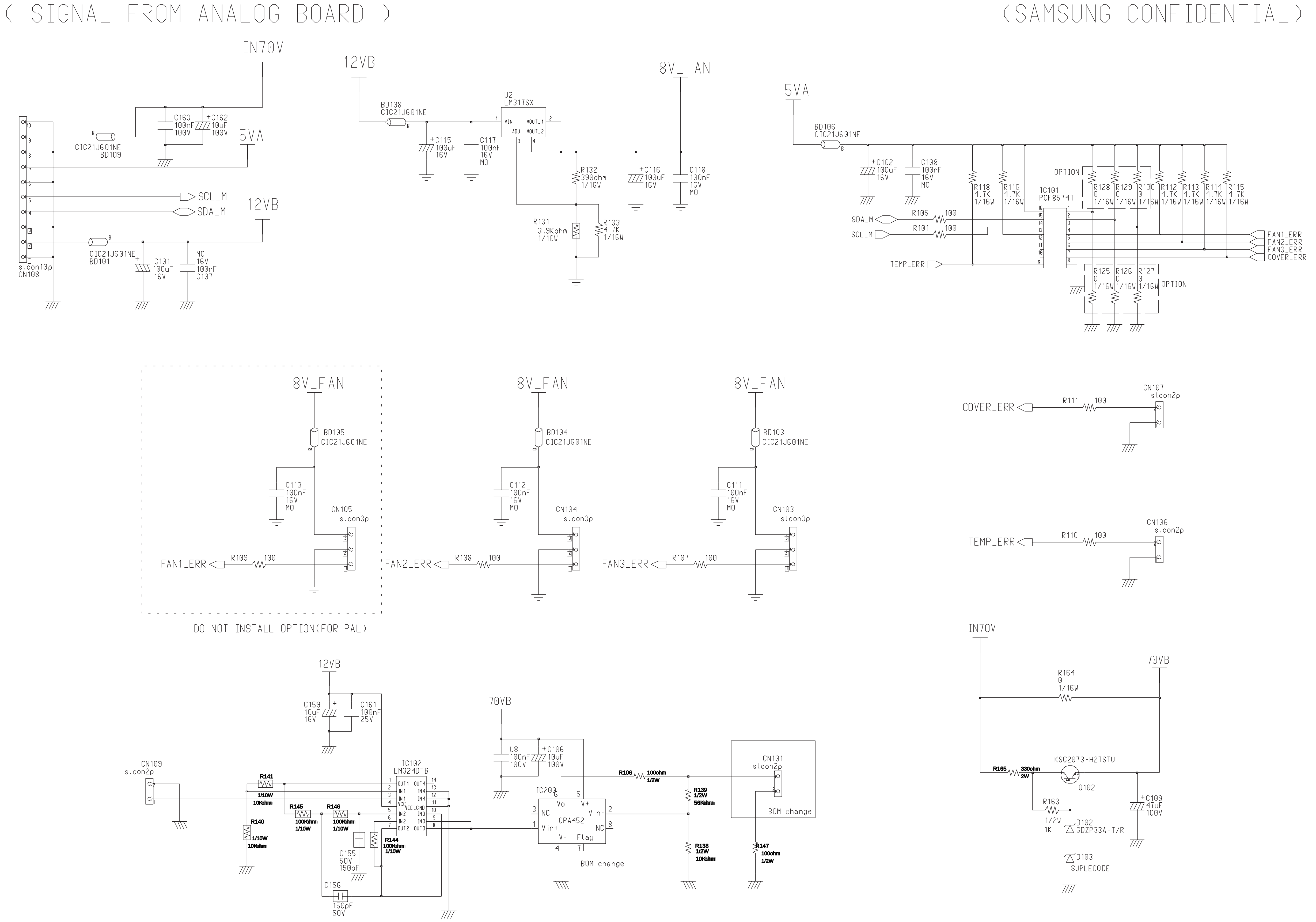
(SIGNAL FROM ANALOG BOARD)
(SAMSUNG CONFIDENTIAL)
IN70V
12VB
8V_FAN
5VA
C163 100nF 100V
C162 10uF 100V
CIC21J601NE BD109
5VA
SCL_M
SDA_M
12VB
CIC21J601NE BD101
C101 100uF 16V
MO 16V 100nF C107
slcon10p CN108
BD108 CIC21J601NE
C115 100uF 16V
C117 100nF 16V MO
U2 LM317SX
VIN VOUT_1 ADJ VOUT_2
R132 390ohm 1/16W
C116 100uF 16V
C118 100nF 16V MO
R131 3.9Kohm 1/10W
R133 4.7K 1/16W
BD106 CIC21J601NE
C102 100uF 16V
C108 100nF 16V MO
OPTION
R118 4.7K 1/16W
R116 4.7K 1/16W
IC101 PCF8574T
R128 0 1/16W
R129 0 1/16W
R130 0 1/16W
R112 4.7K 1/16W
R113 4.7K 1/16W
R114 4.7K 1/16W
R115 4.7K 1/16W
SDA_M
SCL_M
R105 100
R101 100
TEMP_ERR
FAN1_ERR
FAN2_ERR
FAN3_ERR
COVER_ERR
R125 0 1/16W
R126 0 1/16W
R127 0 1/16W
OPTION
8V_FAN
BD105 CIC21J601NE
C113 100nF 16V MO
CN105 slcon3p
FAN1_ERR
R109 100
DO NOT INSTALL OPTION(FOR PAL)
8V_FAN
BD104 CIC21J601NE
C112 100nF 16V MO
CN104 slcon3p
FAN2_ERR
R108 100
8V_FAN
BD103 CIC21J601NE
C111 100nF 16V MO
CN103 slcon3p
FAN3_ERR
R107 100
COVER_ERR
R111 100
CN107 slcon2p
TEMP_ERR
R110 100
CN106 slcon2p
12VB
C159 10uF 16V
C161 100nF 25V
CN109 slcon2p
R141 1/10W 10Kohm
R140 1/10W 10Kohm
R145 100Kohm 1/10W
R146 100Kohm 1/10W
IC102 LM324DTB
OUT1 IN1 IN1 VCC IN2 IN2 OUT2
OUT4 IN4 IN4 VEE_GND IN3 IN3 OUT3
C155 50V 150pF
R144 100Kohm 1/10W
C156 150pF 50V
70VB
U8 100nF 100V
C106 10uF 100V
IC200
OPA452
Vo V+ NC Vin- Vin+ NC V- Flag
BOM change
R106 100ohm 1/2W
R139 1/2W 56Kohm
R138 1/2W 10Kohm
CN101 slcon2p
BOM change
R147 100ohm 1/2W
IN70V
70VB
R164 0 1/16W
R165 330ohm 2W
KSC2073-H2TSTU
Q102
R163 1/2W 1K
D102 GDZP33A-T/R
D103 SUPLECODE
C109 47uF 100V

6-5 POWER

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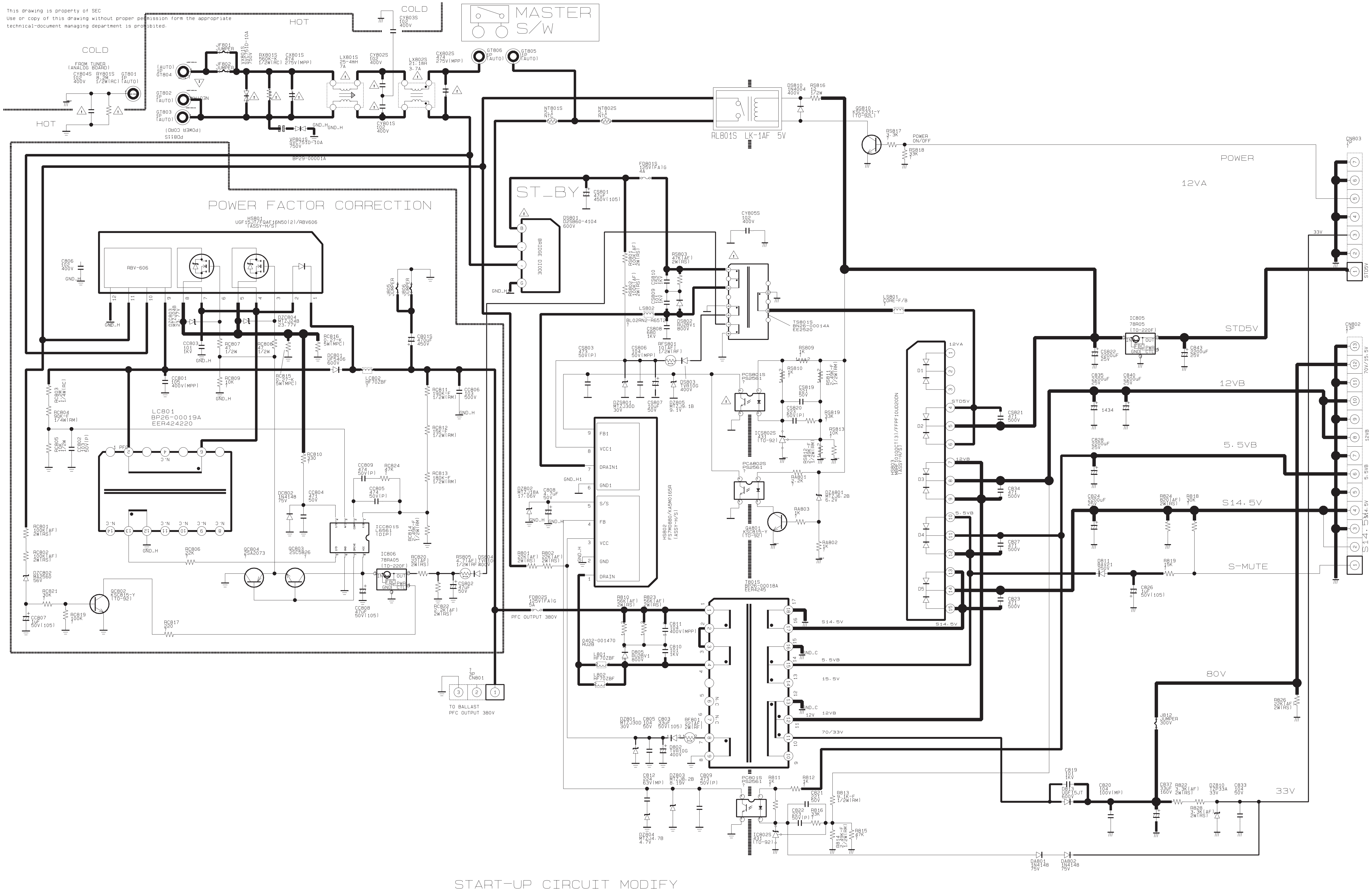
This drawing is property of SEC
Use or copy of this drawing without proper permission form the appropriate technical-document managing department is prohibited.
COLD
HOT
COLD
HOT
MASTER S/W
FROM TUNER (ANALOG BOARD)
POWER FACTOR CORRECTION
ST_BY
BRIDGE DIODE
RLB01S LK-1AF 5V
POWER ON/OFF
POWER
12VA
33V
STD5V
12VB
5.5VB
S14.5V
S-MUTE
80V
33V
PFC OUTPUT 380V
TO BALLAST PFC OUTPUT 380V
START-UP CIRCUIT MODIFY

6-6 LINE FILTER

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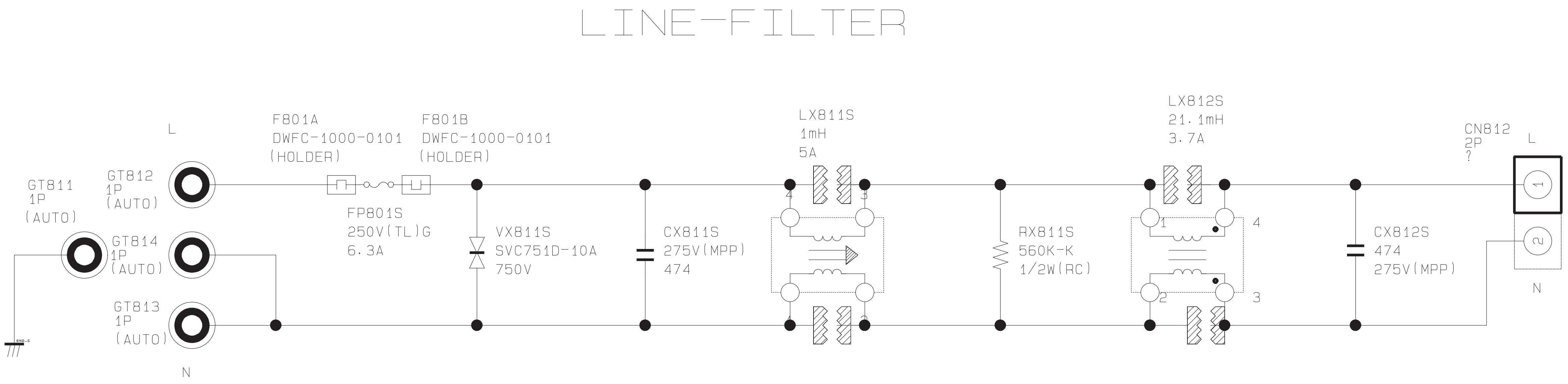
LINE-FILTER
GT811
1P
(AUTO)
GT812
1P
(AUTO)
L
GT814
1P
(AUTO)
GT813
1P
(AUTO)
N
F801A
DWFC-1000-0101
(HOLDER)
F801B
DWFC-1000-0101
(HOLDER)
FP801S
250V(TL)G
6.3A
VX811S
SVC751D-10A
750V
CX811S
275V(MPP)
474
LX811S
1mH
5A
4
3
RX811S
560K-K
1/2W(RC)
LX812S
21.1mH
3.7A
1
4
2
3
CX812S
474
275V(MPP)
CN812
2P
?
L
1
2
N

ELECTRONICS

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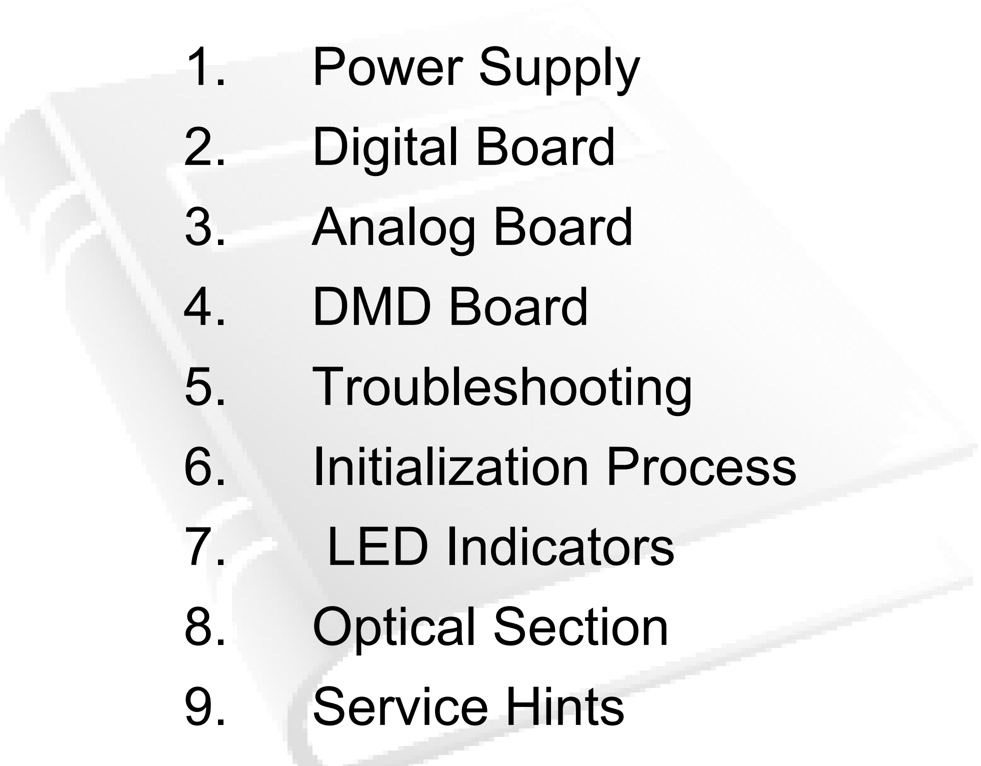
AA82-02021A

DLP Training
(Atlantis Chassis)
June 2004

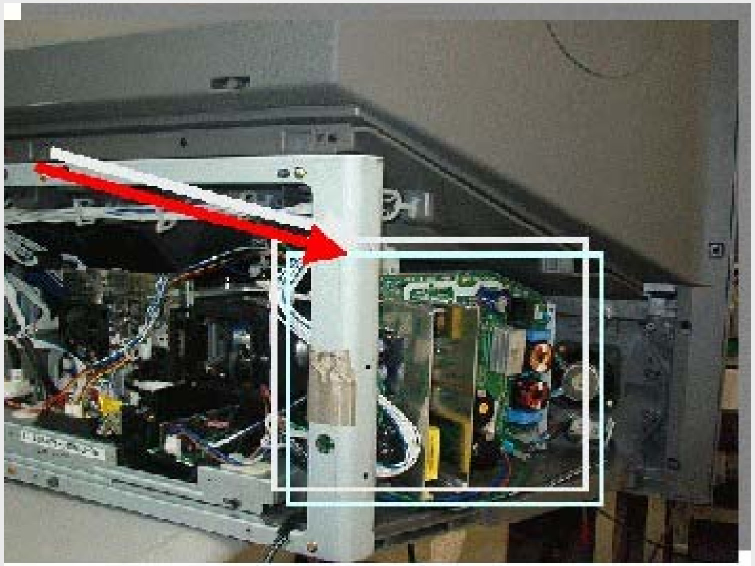
Agenda



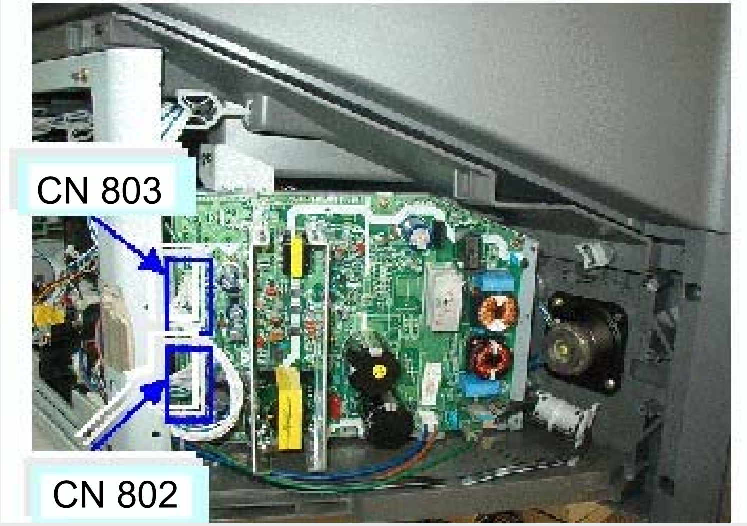
1. Power Supply
2. Digital Board
3. Analog Board
4. DMD Board
5. Troubleshooting
6. Initialization Process
7. LED Indicators
8. Optical Section
9. Service Hints
10. Parts Information
11. Dimensions
12. Review

Power Supply Board

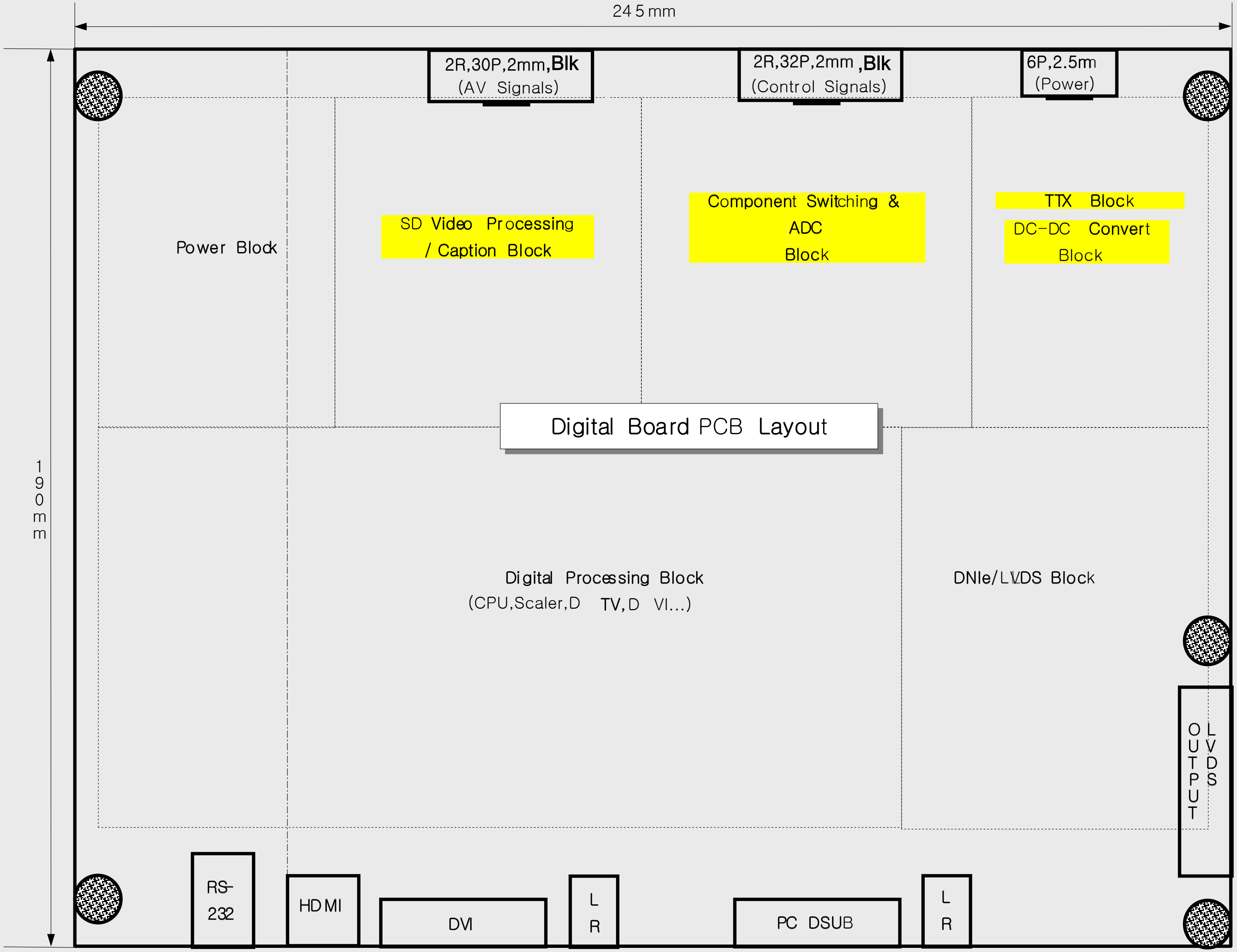
CN803							
Pin #	1	2	3	4	5	6	7
Spec	5VA	GND	33VB	GND	Power-S/W	N.C.	N.C
Used	Supplies DC voltage to the PCB ANALOG						



CN802							
Pin #	1	2	3	4	5	6	7
Spec	Power-Mute	S14.5VB	S-GND	S14.5VB	S-GND	5.7VB	GND
Pin #	8	9	10	11	12	13	
Spec	12VB	GND	12VB	GND	70VB	GND	
Used	Supplies DC voltage to the PCB ANALOG						



Digital Board Layout



245mm

190mm

2R,30P,2mm,**Blk**
(AV Signals)

2R,32P,2mm ,**Blk**
(Control Signals)

6P,2.5m
(Power)

Power Block

SD Video Processing
/ Caption Block

Component Switching &
ADC
Block

TTX Block

DC-DC Convert
Block

Digital Board PCB Layout

Digital Processing Block
(CPU,Scaler,D TV,D VI...)

DNIe/LVDS Block

LVDS
OUTPUT

RS-232

HDMI

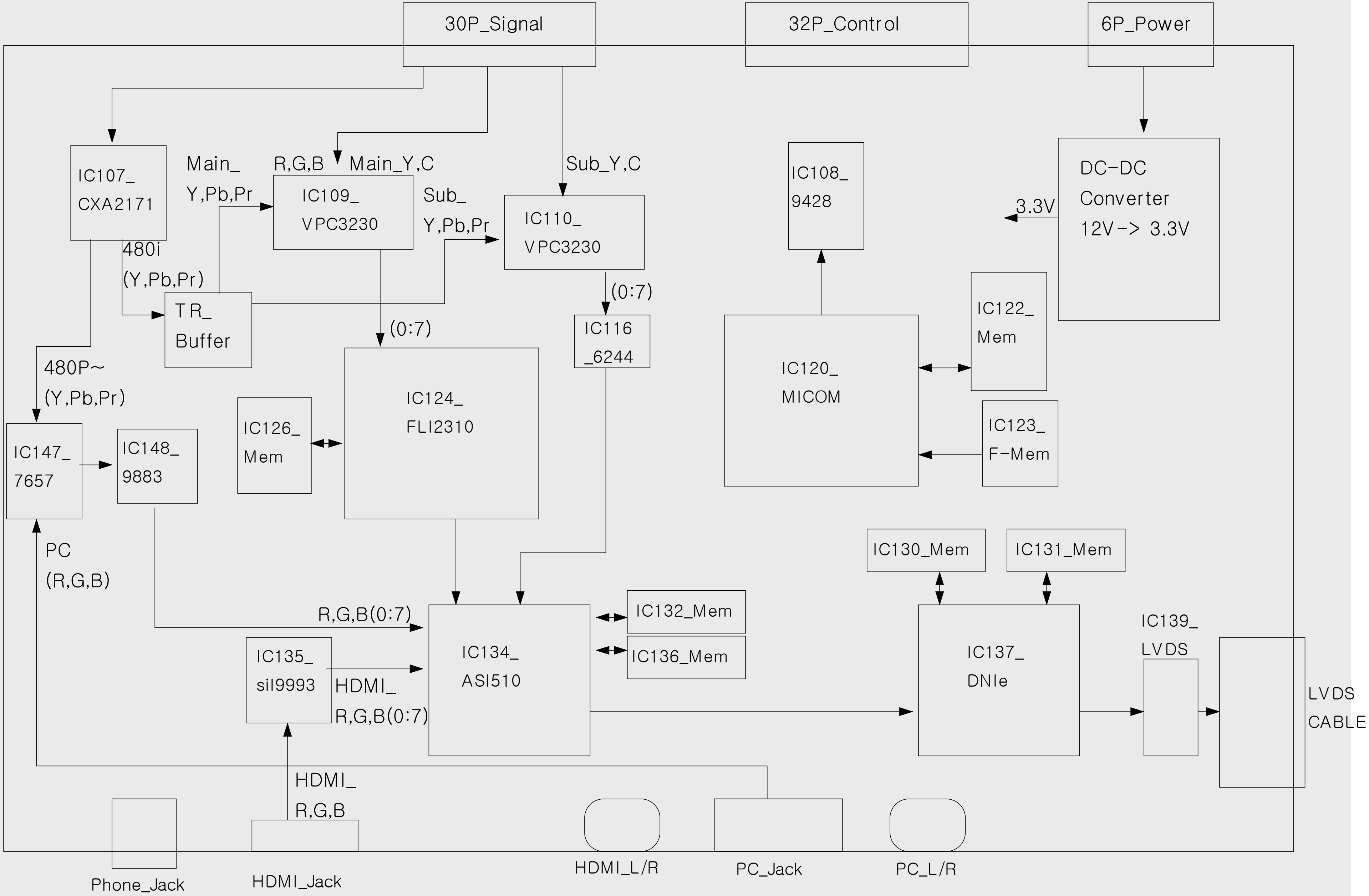
DVI

L
R

PC DSUB

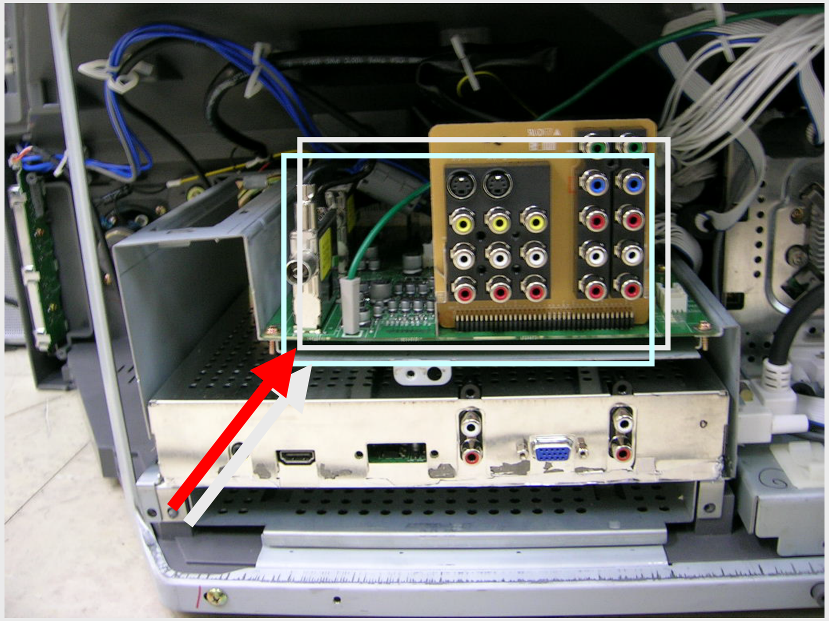
L
R

Digital Board Characteristics

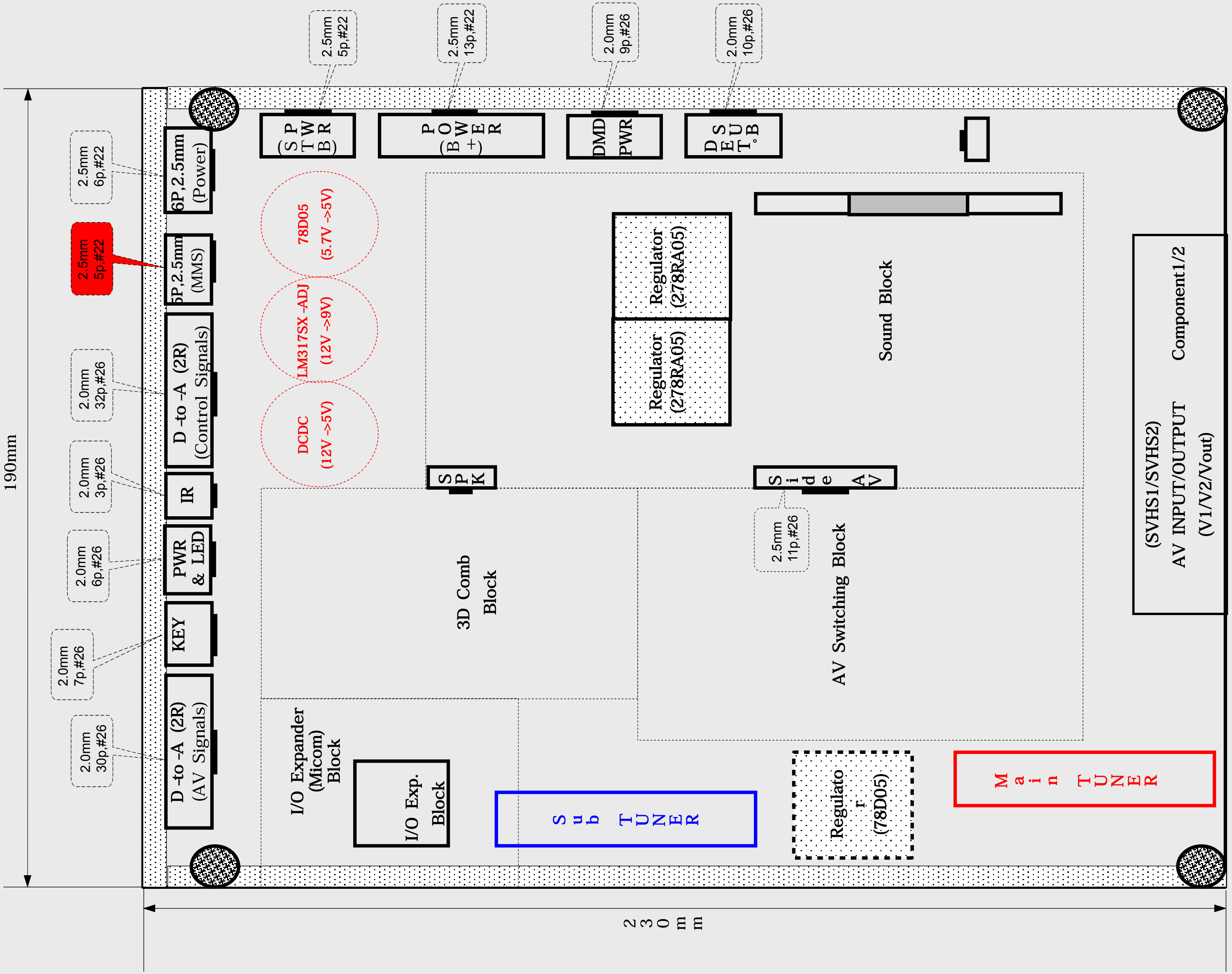

30P_Signal
32P_Control
6P_Power
IC107_
CXA2171
Main_
Y,Pb,Pr
R,G,B
Main_Y,C
IC109_
VPC3230
Sub_
Y,Pb,Pr
Sub_Y,C
IC110_
VPC3230
IC108_
9428
DC-DC
Converter
12V-> 3.3V
3.3V
480i
(Y,Pb,Pr)
TR_
Buffer
(0:7)
(0:7)
IC116
_6244
IC122_
Mem
IC120_
MICOM
480P~
(Y,Pb,Pr)
IC124_
FLI2310
IC126_
Mem
IC147_
7657
IC148_
9883
IC123_
F-Mem
PC
(R,G,B)
IC130_Mem
IC131_Mem
R,G,B(0:7)
IC132_Mem
IC136_Mem
IC134_
ASI510
IC135_
sil9993
HDMI_
R,G,B(0:7)
IC137_
DNIe
IC139_
LVDS
LVDS
CABLE
HDMI_
R,G,B
Phone_Jack
HDMI_Jack
HDMI_L/R
PC_Jack
PC_L/R

Analog Board

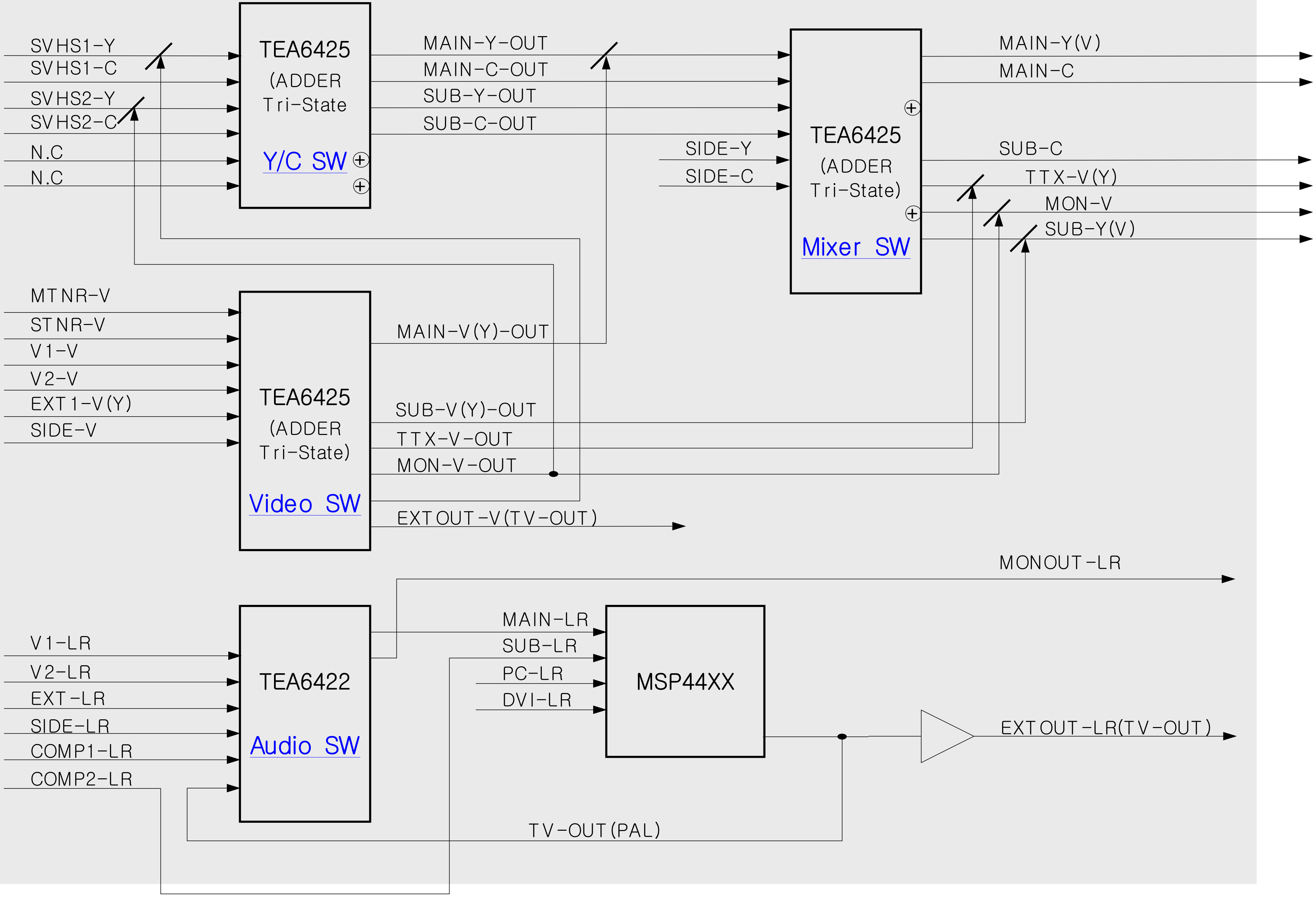
- Distributes supply voltage from the Power Board to Digital Board
- Transfers Turn-On Command from Digital Board to Power Board.
- Encompasses the majority of the Audio Circuit
- Analog Video Switching / Processing



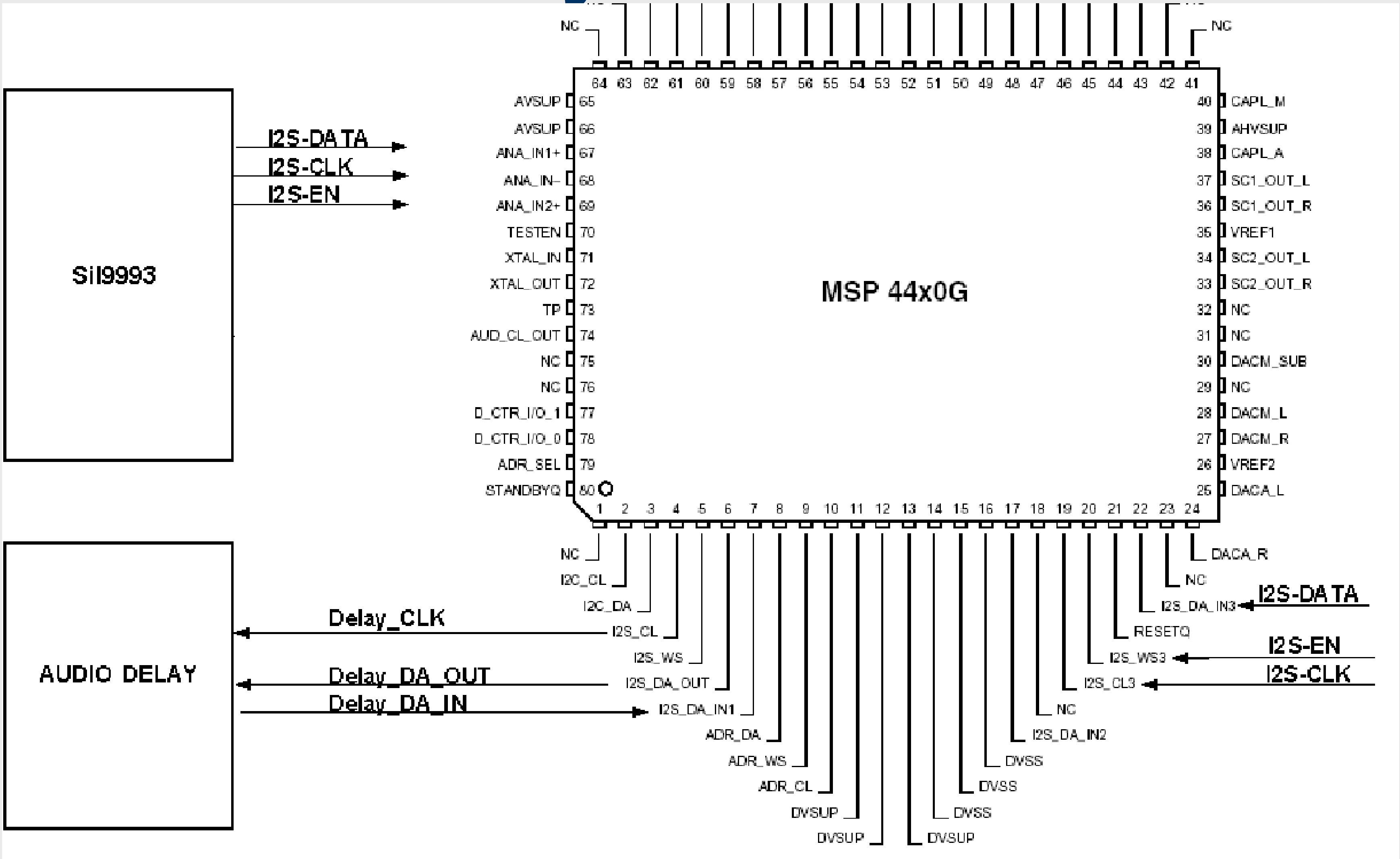
Analog PCB Layout


2.5mm 5p,#22
2.5mm 13p,#22
2.0mm 9p,#26
2.0mm 10p,#26
(SPTWBR)
POWER (B+)
DMD PWR
DSEUT.B
2.5mm 6p,#22
6P,2.5mm (Power)
2.5mm 5p,#22
5P,2.5mm (MMS)
2.0mm 32p,#26
D-to-A (2R) (Control Signals)
2.0mm 3p,#26
IR
2.0mm 6p,#26
PWR & LED
KEY
2.0mm 7p,#26
2.0mm 30p,#26
D-to-A (2R) (AV Signals)
190mm
230mm
78D05 (5.7V->5V)
LM317SX-ADJ (12V->9V)
DCDC (12V->5V)
Regulator (278RA05)
Regulator (278RA05)
Sound Block
Component1/2
(SVHS1/SVHS2) AV INPUT/OUTPUT (V1/V2/Vout)
SPK
Side AV
2.5mm 11p,#26
3D Comb Block
AV Switching Block
I/O Expander (Micom) Block
I/O Exp. Block
Sub TUNER
Regulator (78D05)
Main TUNER

AV Switching (TEA64XX) Block


SVHS1-Y
SVHS1-C
SVHS2-Y
SVHS2-C
N.C
N.C
TEA6425
(ADDER
Tri-State
Y/C SW
MAIN-Y-OUT
MAIN-C-OUT
SUB-Y-OUT
SUB-C-OUT
SIDE-Y
SIDE-C
TEA6425
(ADDER
Tri-State)
Mixer SW
MAIN-Y(V)
MAIN-C
SUB-C
TTX-V(Y)
MON-V
SUB-Y(V)
MTNR-V
STNR-V
V1-V
V2-V
EXT1-V(Y)
SIDE-V
TEA6425
(ADDER
Tri-State)
Video SW
MAIN-V(Y)-OUT
SUB-V(Y)-OUT
TTX-V-OUT
MON-V-OUT
EXTOUT-V(TV-OUT)
MONOUT-LR
V1-LR
V2-LR
EXT-LR
SIDE-LR
COMP1-LR
COMP2-LR
TEA6422
Audio SW
MAIN-LR
SUB-LR
PC-LR
DVI-LR
MSP44XX
EXTOUT-LR(TV-OUT)
TV-OUT(PAL)

Audio Delay and HDMI Audio


SiI9993
I2S-DATA
I2S-CLK
I2S-EN
AUDIO DELAY
Delay_CLK
Delay_DA_OUT
Delay_DA_IN
MSP 44x0G
NC
NC
64 63 62 61 60 59 58 57 56 55 54 53 52 51 50 49 48 47 46 45 44 43 42 41
AVSUP 65
AVSUP 66
ANA_IN1+ 67
ANA_IN− 68
ANA_IN2+ 69
TESTEN 70
XTAL_IN 71
XTAL_OUT 72
TP 73
AUD_CL_OUT 74
NC 75
NC 76
D_CTR_I/O_1 77
D_CTR_I/O_0 78
ADR_SEL 79
STANDBYQ 80
40 CAPL_M
39 AHVSUP
38 CAPL_A
37 SC1_OUT_L
36 SC1_OUT_R
35 VREF1
34 SC2_OUT_L
33 SC2_OUT_R
32 NC
31 NC
30 DACM_SUB
29 NC
28 DACM_L
27 DACM_R
26 VREF2
25 DACA_L
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24
NC
I2C_CL
I2C_DA
I2S_CL
I2S_WS
I2S_DA_OUT
I2S_DA_IN1
ADR_DA
ADR_WS
ADR_CL
DVSUP
DVSUP
DVSUP
DVSS
DVSS
DVSS
I2S_DA_IN2
NC
I2S_CL3
I2S_WS3
RESETQ
I2S_DA_IN3
NC
DACA_R
I2S-DATA
I2S-EN
I2S-CLK

CN 257 Pin Assignment

CN257- Supplies AV Signals to PCB DIGITAL

Pin Name	I/O	PIN No.		I/O	Pin Name
Comp1-Y	←	1	2		GND
Comp1-Pb	←	3	4		GND
Comp1-Pr	←	5	6		GND
Comp2-Y	←	7	8		GND
Comp2-Pr	←	9	10		GND
Comp2-Pb	←	11	12		GND
N.C.	←	13	14		GND
N.C.	←	15	16		GND
N.C.	←	17	18		GND
Main-Y/V	←	19	20		GND
Main-C	←	21	22		GND
Sub-Y/V	←	23	24		GND
Sub-C	←	25	26		GND
Caption(TTX)-CVBS	←	27	28		GND
IR	←	29	30		GND

CN258 Pin Assignment

CN258- Connects Control Signals between PCB Analog and PCB Digital

Pin Name	I/O	PIN No.		I/O	Pin Name
LED1	↔	1	2	↔	SDA-Micom
LED2	→	3	4	←	SCL-Micom
LED3		5	6		GND
Key1	←	7	8	↔	SDA-Analog
Key2		9	10	←	SCL-Analog
Reset-D	←	11	12		GND
I2C-STOP	←	13	14	←	SDA-Digital
Power-SW	←	15	16		SCL-Digital
N.C.		17	18	←	GND
N.C.	←	19	20	←	I2S-CLK-HDMI
GND	←	21	22		I2S-EN-HDMI
MCLK_AUDIO	→	23	24		I2S-DATA-HDMI
S-MUTE	→	25	26	←	GND
PC-L	→	27	28	←	DVI-L
PC-R		29	30		DVI-R
GND	←	31	32	←	GND

CN243/CN244 Pin Assignment

CN243 / 244 Receives Power Signals from PCB POWER

Pin Name	PIN No.		Pin Name
Power-Mute	1	2	S14.5VB
S-GND	3	4	S14.5VB
S-GND	5	6	5.7VB
GND	7	8	12VB
GND	9	10	12VB
GND	11	12	70VB
GND	13	-	

Pin Name	PIN No.		Pin Name
5VA	1	2	GND
33VB	3	4	GND
Power-SW	5	6	N.C.
N.C.	7	-	

CN208 / CN251 Pin Assignment

CN208 Supplies Power Signals to PCB DMD

Pin Name	PIN No.		Pin Name
5VB	1	2	5VB
GND	3	4	GND
12VB	5	6	12VB
GND	7	8	GND
GND	9	-	-

CN251 supplies power to Actuator / Protection Board

Pin Name	SUB Detector/Actuator	PIN No.		SUB Detector/Actuator	Pin Name
GND	Ground	1	2	Fan-VCC	12VB
GND	Ground	3	4	SDA-Memory	SDA-M
SCL-M	SCL-Memory	5	6	Ground	GND
5VA	5VA	7	8	Ground	GND
70VB	70VB	9	10	Ground	GND

CN223 Pin Assignment

CN223 Receives AV Signals from PCB SIDE-AV

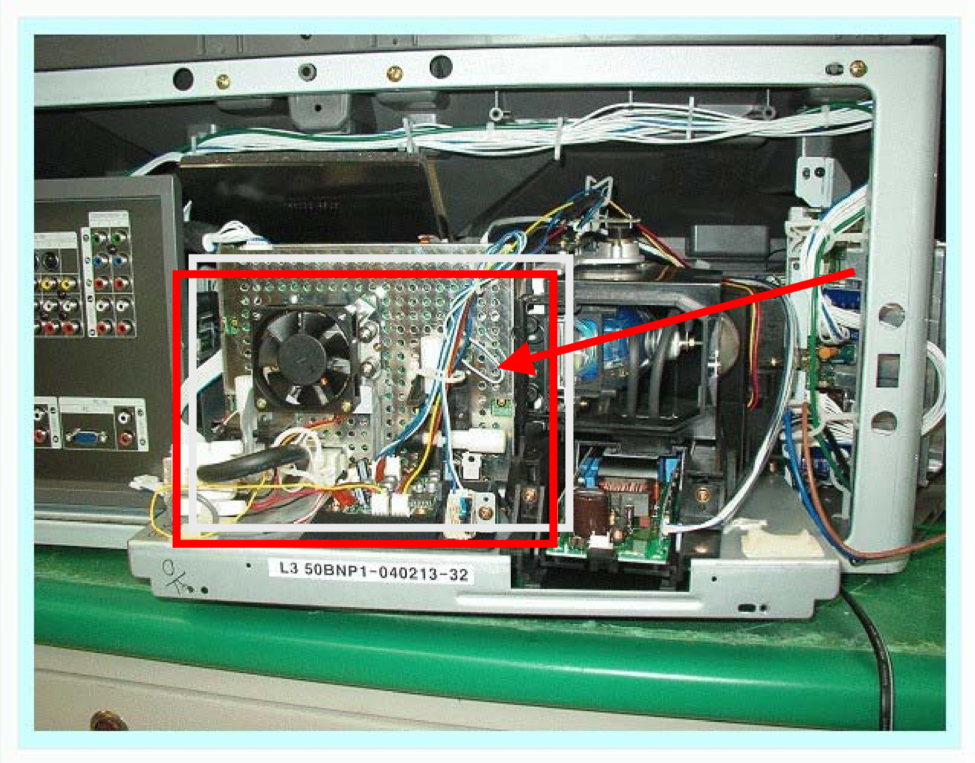
Pin Name	Side AV	PIN No.		Side AV	Pin Name
Side-Y	SVHS Y (Luma)	1	2	SVHS C (Chroma)	Side-C
GND	Ground	3	4	Video (CVBS)	Side-V
GND	Ground	5	6	Side Sound L	Side-L
GND	Ground	7	8	Side Sound R	Side-R
GND	Ground	9	10	SVHS Jack Detect	Side-SDET
Side-VDET	Video Jack Detect	11	-		

I/O Expander Pin Assignment

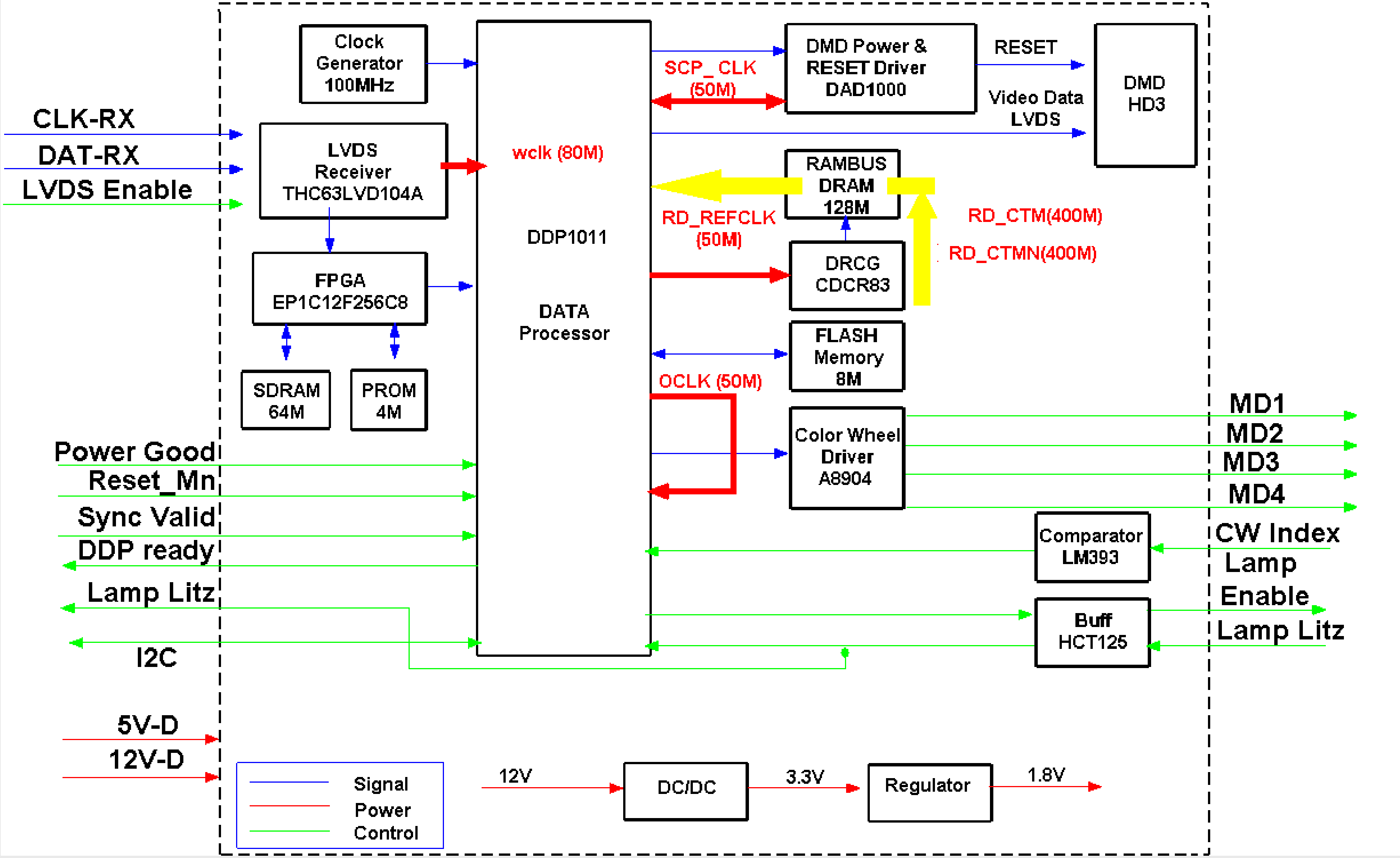
	DES	NAME	PIN		PIN	NAME	DES	
GND		VSS	1	S3P9428/32-SOP	32	VDD		
		XIN	2		31	P0.2	I/O	S1-DET
		XOUT	3		30	P0.3	I/O	S2-DET
GND		TEST	4		29	P0.4	I/O,ADC	Side-SDET
Comp2-DET	I/O	P0.1	5		28	P0.5	I/O,ADC	V1-DET
Comp1-DET	I/O	P0.0	6		27	P0.6	I/O,ADC	V2-DET
RESET-D		RESET	7		26	P0.7	I/O,ADC	Side-VDET
RF-SEL	O	P3.0	8		25	P3.1	O	SOUND-RESET
LNA-SW	O	P3.2	9		24	P3.3	O	DEFAULT
MTNR-AFT	I/O,ADC	P2.0	10		23	P1.0	I/O	DELAY1
STNR-AFT	I/O,ADC	P2.1	11		22	P1.1	I/O	DELAY2
N.C	I/O,ADC	P2.2	12		21	P1.2	I/O	GAIN0
N.C	I/O,ADC	P2.3	13		20	P1.3	I/O	GAIN1
RF-AGC	I/O,ADC	P2.4	14		19	P2.7	SCL	SCL-A
GND	ADDRESS	P2.5	15		18	P2.6	SDA	SDA-A
GND		AVSS	16		17	AVREF		

DMD Board

- Controls Lamp Turn-On
- Powers Color Wheel Motor
- Drives DMD Panel
- Sensor Controls
- Attached to Light Engine

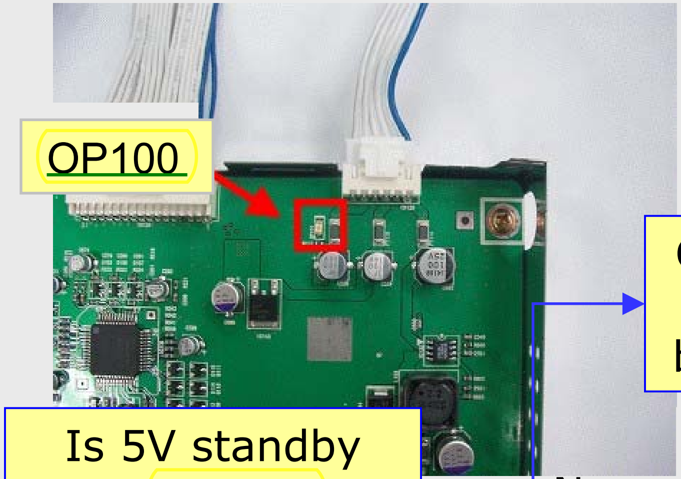

L3 50BNP1-040213-32

DMD Block Diagram


Clock Generator 100MHz
CLK-RX
DAT-RX
LVDS Enable
LVDS Receiver THC63LVD104A
FPGA EP1C12F256C8
SDRAM 64M
PROM 4M
wclk (80M)
DDP1011
DATA Processor
SCP_ CLK (50M)
DMD Power & RESET Driver DAD1000
RESET
Video Data LVDS
DMD HD3
RAMBUS DRAM 128M
RD_REFCLK (50M)
RD_CTM(400M)
RD_CTMN(400M)
DRCG CDCR83
FLASH Memory 8M
OCLK (50M)
Color Wheel Driver A8904
MD1
MD2
MD3
MD4
Power Good
Reset_Mn
Sync Valid
DDP ready
Comparator LM393
CW Index
Lamp Enable
Lamp Litz
Buff HCT125
Lamp Litz
I2C
5V-D
12V-D
Signal
Power
Control
12V
DC/DC
3.3V
Regulator
1.8V

Troubleshooting

Dead Set



Is 5V standby LED(OP100) lit on analog board?

No

Check power to analog board CN245

OK

Unplug connector CN245 if LED (OP103) turns on replace the digital board

NG

Unplug the Actuator Board

NG

Replace the Power board

OK

Replace the Actuator

Yes

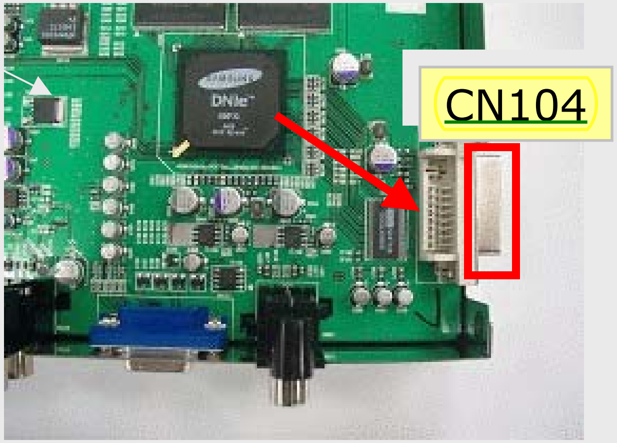
Make sure CN104 on digital board is connected

NG

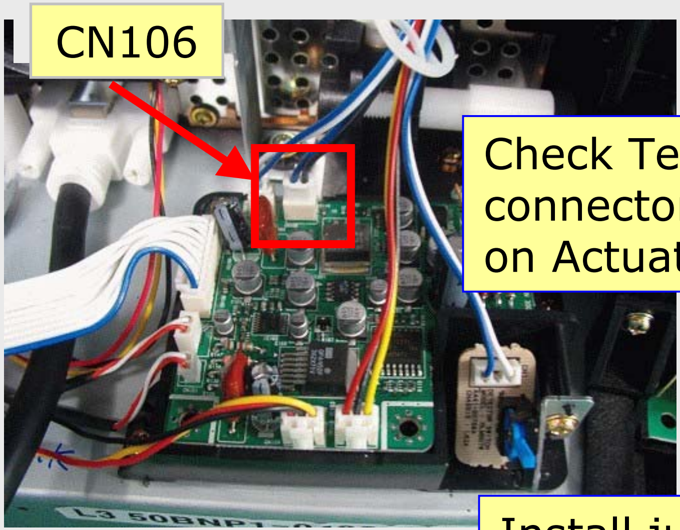
Reconnect CN104

OK

Replace keypad



Blinking Temp LED



Check Temp Sensor connector CN106 on Actuator Board

NG

Re-insert connector

OK

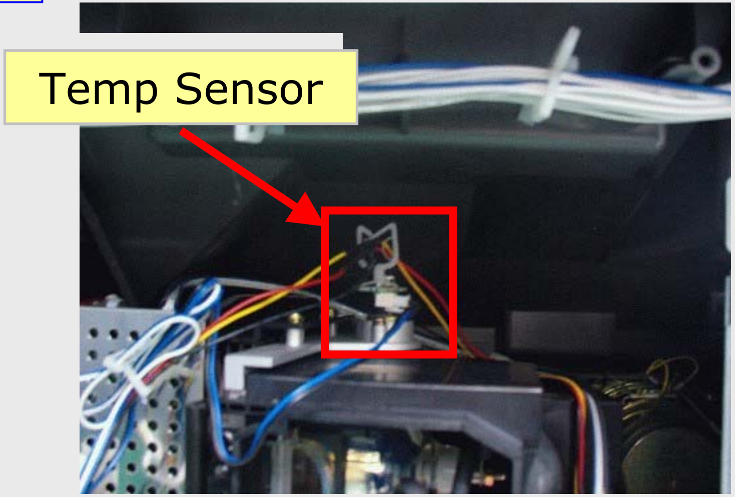
Install jumper across Temp Sensor Terminals. Does it work?

No

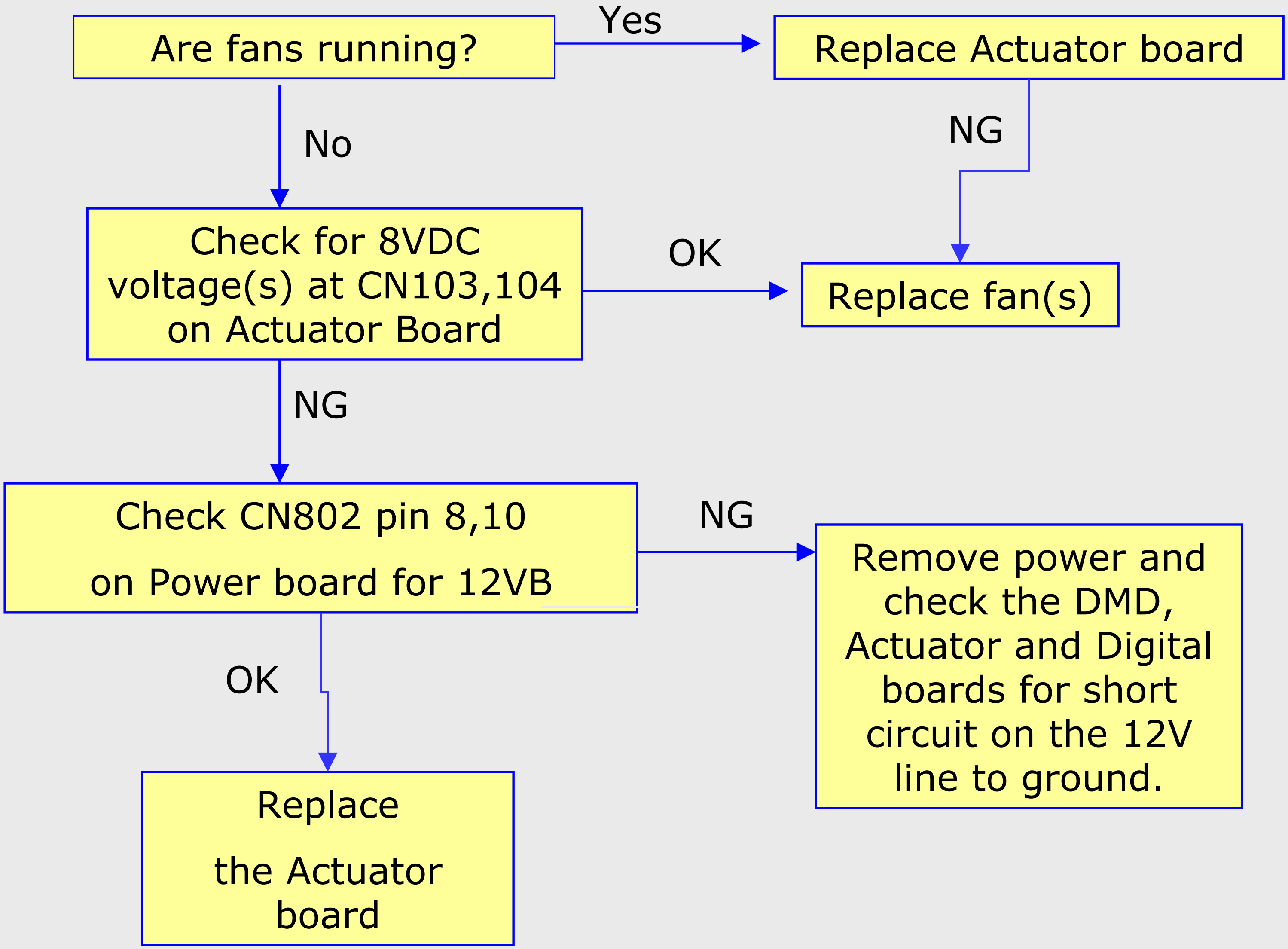
Replace the Actuator board

Yes

Replace Temp Sensor.



Blinking Temp and Timer LED



Are fans running?

Yes

Replace Actuator board

No

NG

Check for 8VDC voltage(s) at CN103,104 on Actuator Board

OK

Replace fan(s)

NG

Check CN802 pin 8,10

on Power board for 12VB

NG

Remove power and check the DMD, Actuator and Digital boards for short circuit on the 12V line to ground.

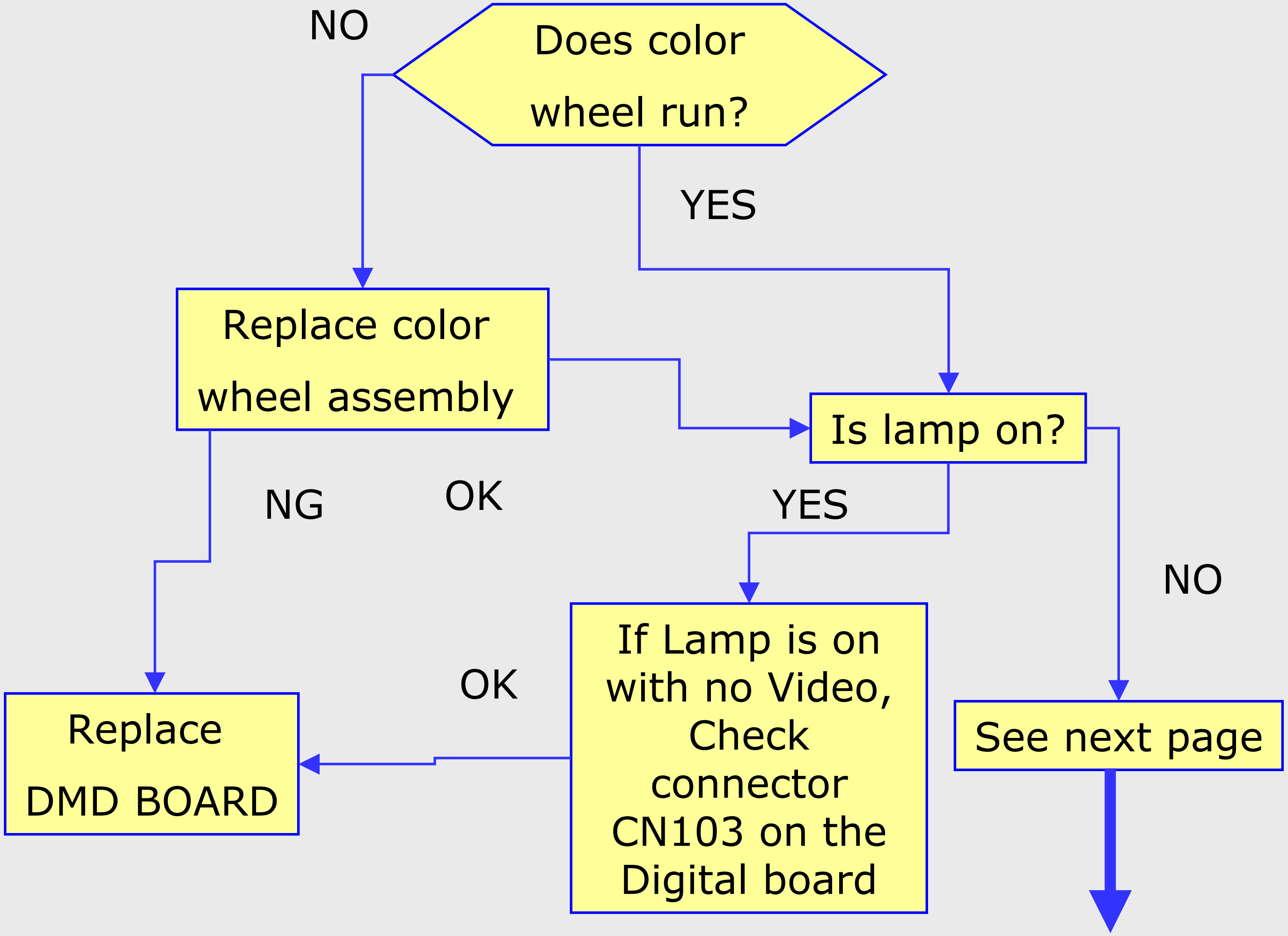
OK

Replace

the Actuator board

All Front Panel LEDs Blinking

All three LEDs blinking is the most common failure indication. It can be caused by defective lamp, defective color wheel, fan failure or other defective components.



Does color wheel run?

NO

YES

Replace color wheel assembly

Is lamp on?

NG

OK

YES

NO

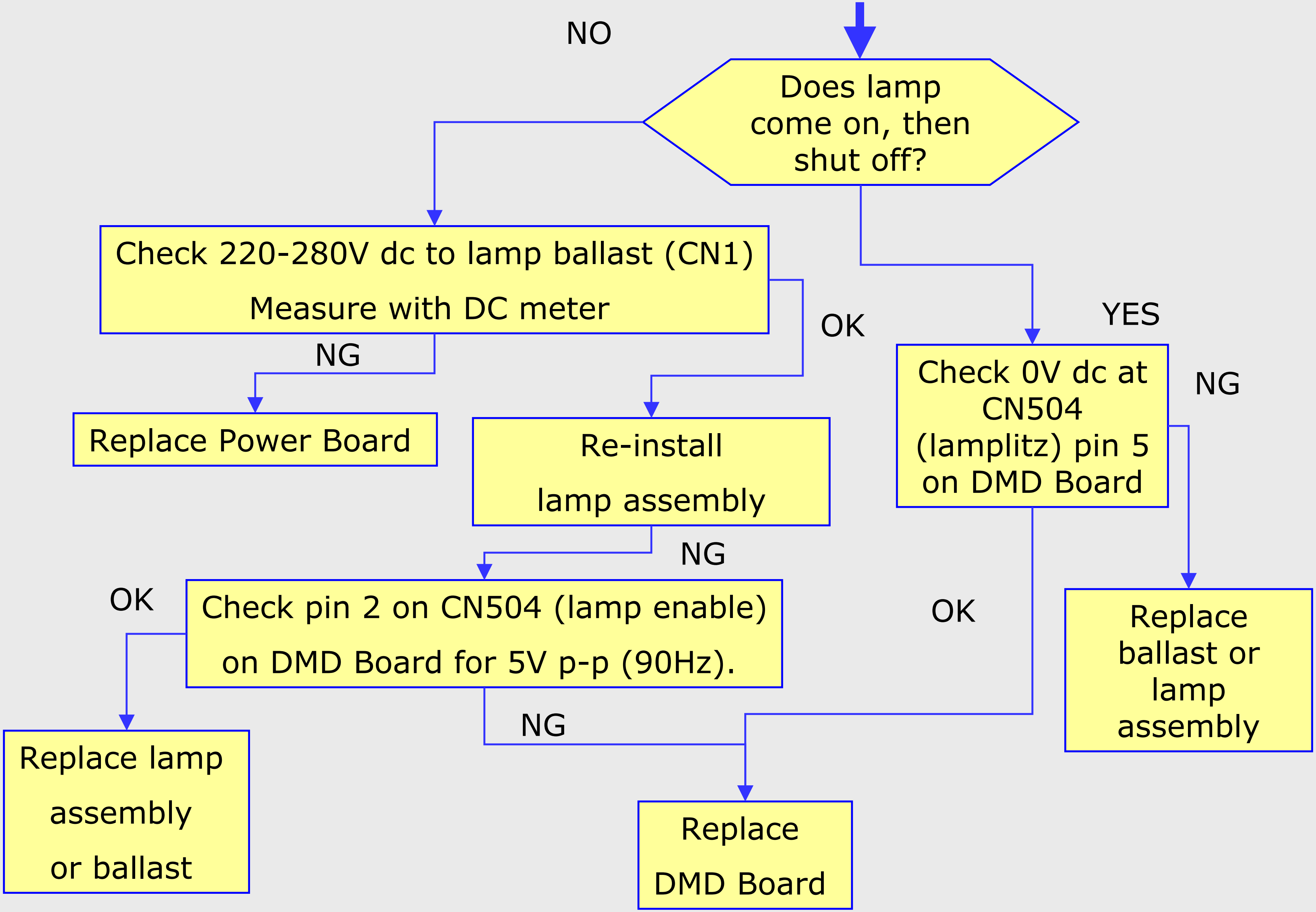
Replace DMD BOARD

OK

If Lamp is on with no Video, Check connector CN103 on the Digital board

See next page

All Front Panel LEDs Blinking Continued



NO

Does lamp come on, then shut off?

Check 220-280V dc to lamp ballast (CN1)

Measure with DC meter

NG

Replace Power Board

OK

Re-install lamp assembly

NG

Check pin 2 on CN504 (lamp enable) on DMD Board for 5V p-p (90Hz).

OK

Replace lamp assembly or ballast

NG

Replace DMD Board

YES

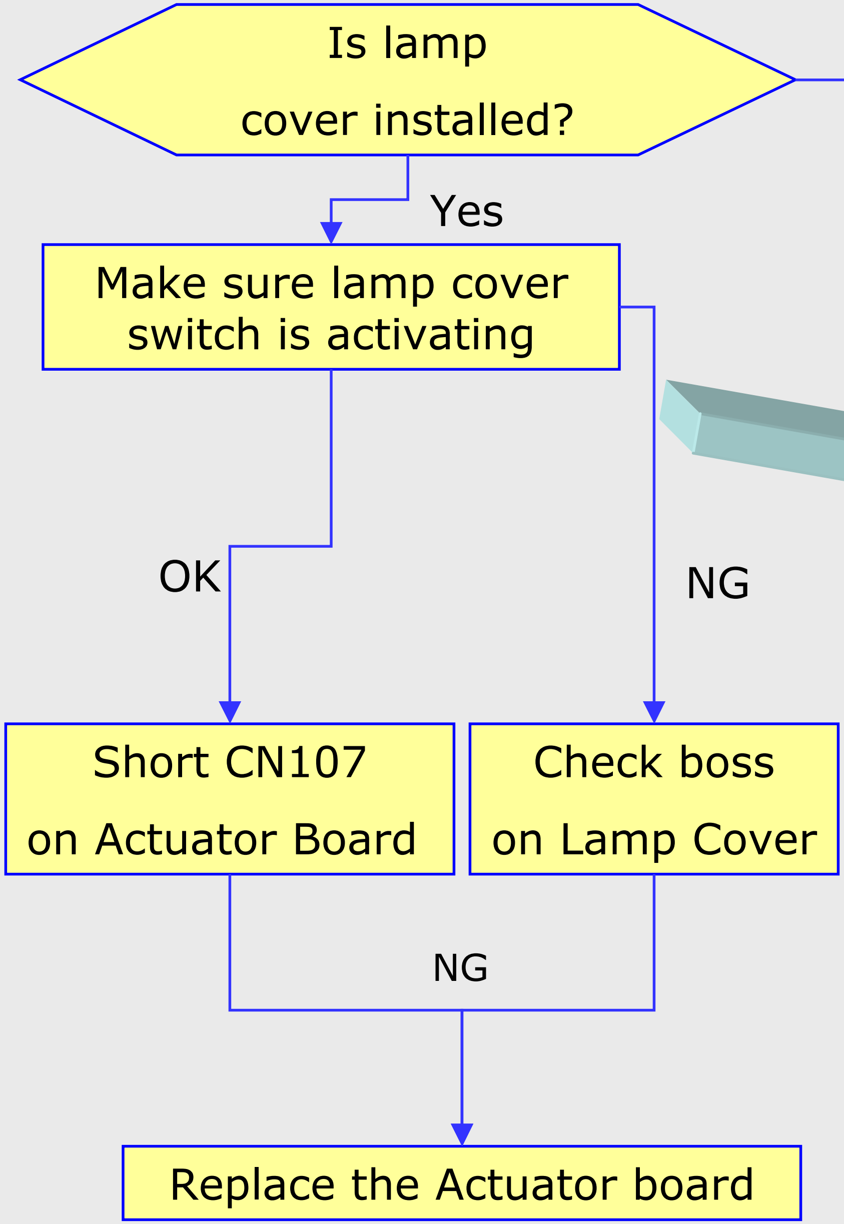
Check 0V dc at CN504 (lamplitz) pin 5 on DMD Board

NG

Replace ballast or lamp assembly

OK

Blinking Lamp and Temp. LED’s



Is lamp cover installed?

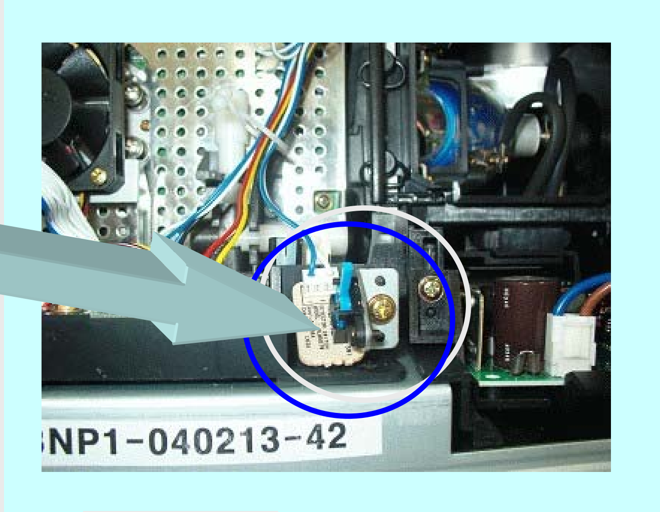
No → Install lamp cover

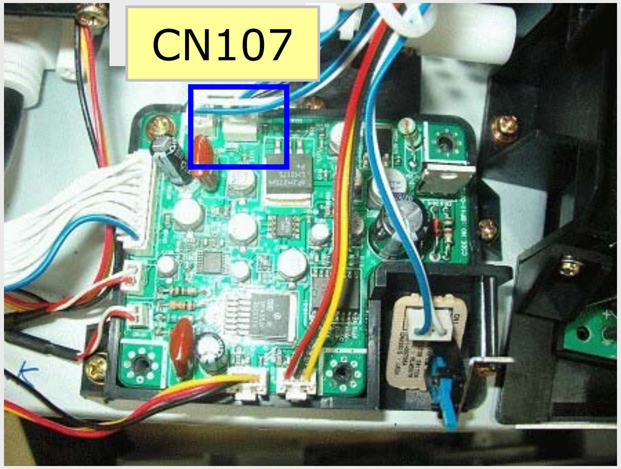
Yes → Make sure lamp cover switch is activating

OK → Short CN107 on Actuator Board

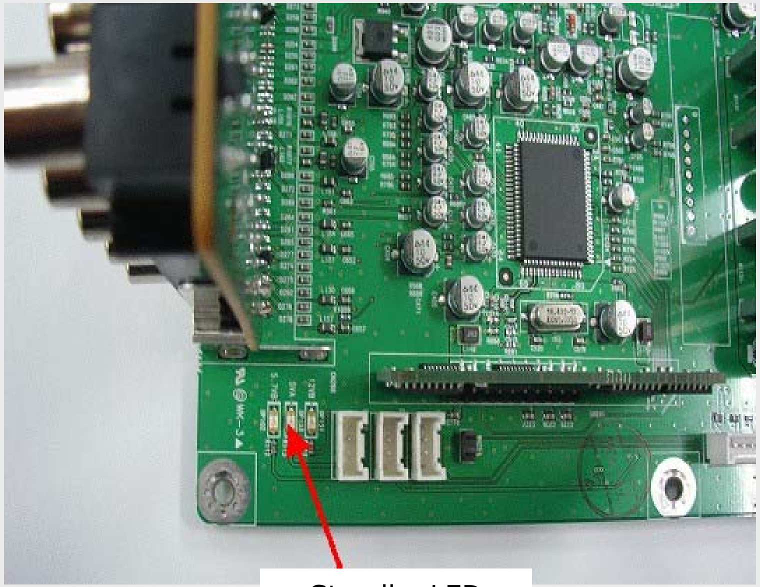
NG → Check boss on Lamp Cover

NG → Replace the Actuator board





Initialization Process



Standby LED

1. Standby LED on Analog PCB ON (5V)

2. Power ON signal from Sub Front PCB or IR sensor to Digital PCB.

3. Power ON signal generated by Digital PCB-> Analog PCB-> POWER PCB.

4. All other voltages turn on (3 status LED's on analog board lit) .

5. Fans turn on.

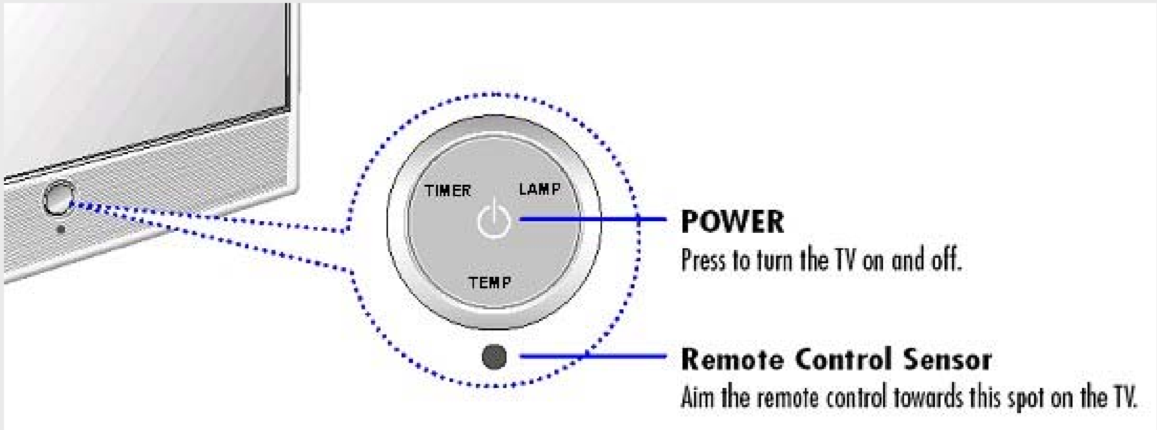
6. Fan protection circuit verifies Fan Operation.

7. Digital PCB tells DMD PCB to turn color wheel and lamp on.

8. DMD / digital PCB's check feedback (LampLitz – low, DDP ready – High) signals from lamp and DMD Controller (DDP1011).

9. If OK, Digital PCB tells DMD to remove video mute.

Front Panel LED Indicators



POWER
Press to turn the TV on and off.

Remote Control Sensor
Aim the remote control towards this spot on the TV.

Legend

● = LED On

○= LED Off

◉= LED Blinking

Timer	Lamp	Standby/ Temp	Indication
○	○	●	Standby State
●	○	○	Auto Timer On/Off has been set
○	○	○	Set is operating Normally
○	◉	○	Turn on state, picture will appear in about 15 seconds
◉	◉	○	Auto Timer On/Off has been set, picture will appear in ~ 25 seconds
◉	○	◉	A cooling fan inside the set is not operating properly
○	◉	◉	The Lamp cover on the rear of the set is not installed properly.
○	○	◉	Excessive Temperature error, check for proper ventilation
◉	◉	◉	Lamp does not light, replace with a new lamp

Optical Section

Background

Samsung introduced their new DLP technology projection televisions in 2002. DLP stands for

Digital Light Processing

DLP is quite different than conventional projection television, which uses three separate color CRT's. These separate video signals are projected and combined on the screen. DLP, on the other hand, has no CRT's. Instead, one high intensity lamp is used to project one image on the screen.

DLP technology was first developed by Texas Instruments.

The heart of this technology is the DMD, or

Digital Micromirror Device.

L2 and L3 Design Comparison

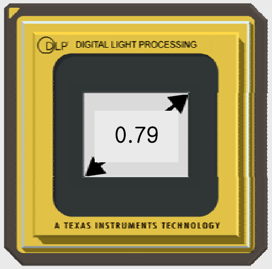
DMD PANEL

L2 Design : HD2 Panel

Incident light

1280 X 720

(921600 pixels)


DLP DIGITAL LIGHT PROCESSING
0.79
A TEXAS INSTRUMENTS TECHNOLOGY

* Unit = Inch

L3 Design : HD3 Panel

Incident light

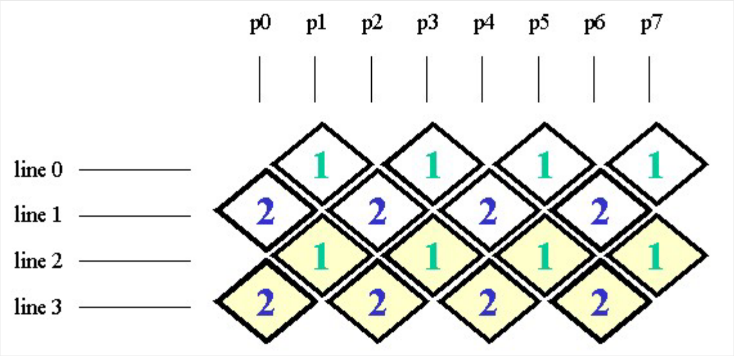
640 x 720

(460800 pixels)

DLP DIGITAL LIGHT PROCESSING
0.55
A TEXAS INSTRUMENTS TECHNOLOGY

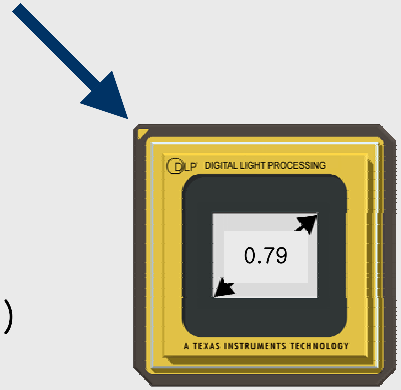
* Unit = Inch

Diamond Pixel Pattern


p0
p1
p2
p3
p4
p5
p6
p7
line 0
line 1
line 2
line 3
1
2

DMD Differences

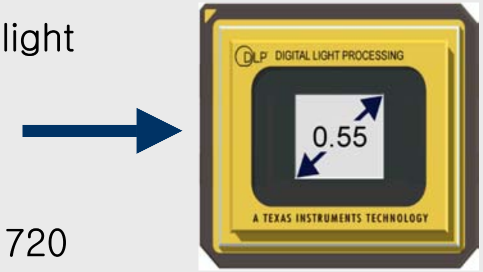
Incident light


DLP DIGITAL LIGHT PROCESSING
0.79
A TEXAS INSTRUMENTS TECHNOLOGY

1280 X 720

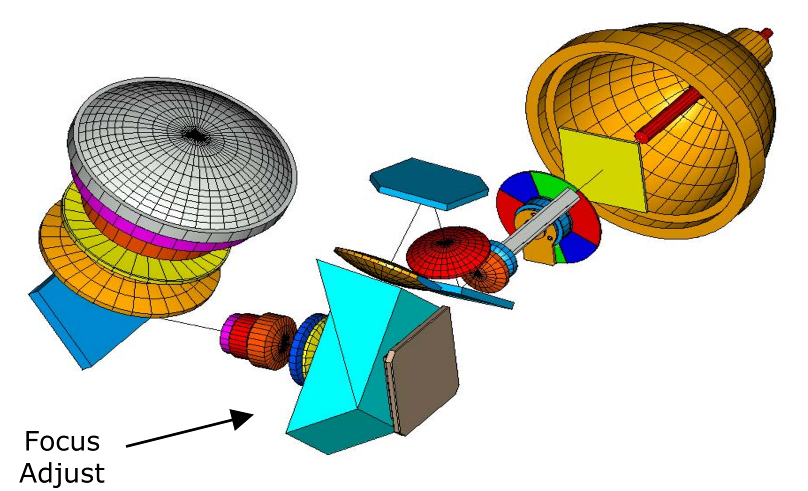
(921600 pixels)

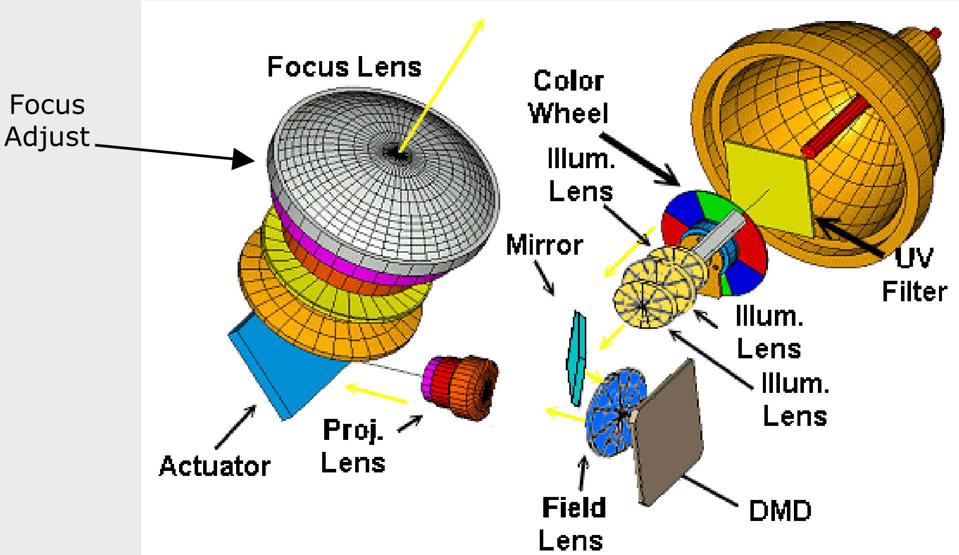
Incident light


DLP DIGITAL LIGHT PROCESSING
0.55
A TEXAS INSTRUMENTS TECHNOLOGY

640 x 720

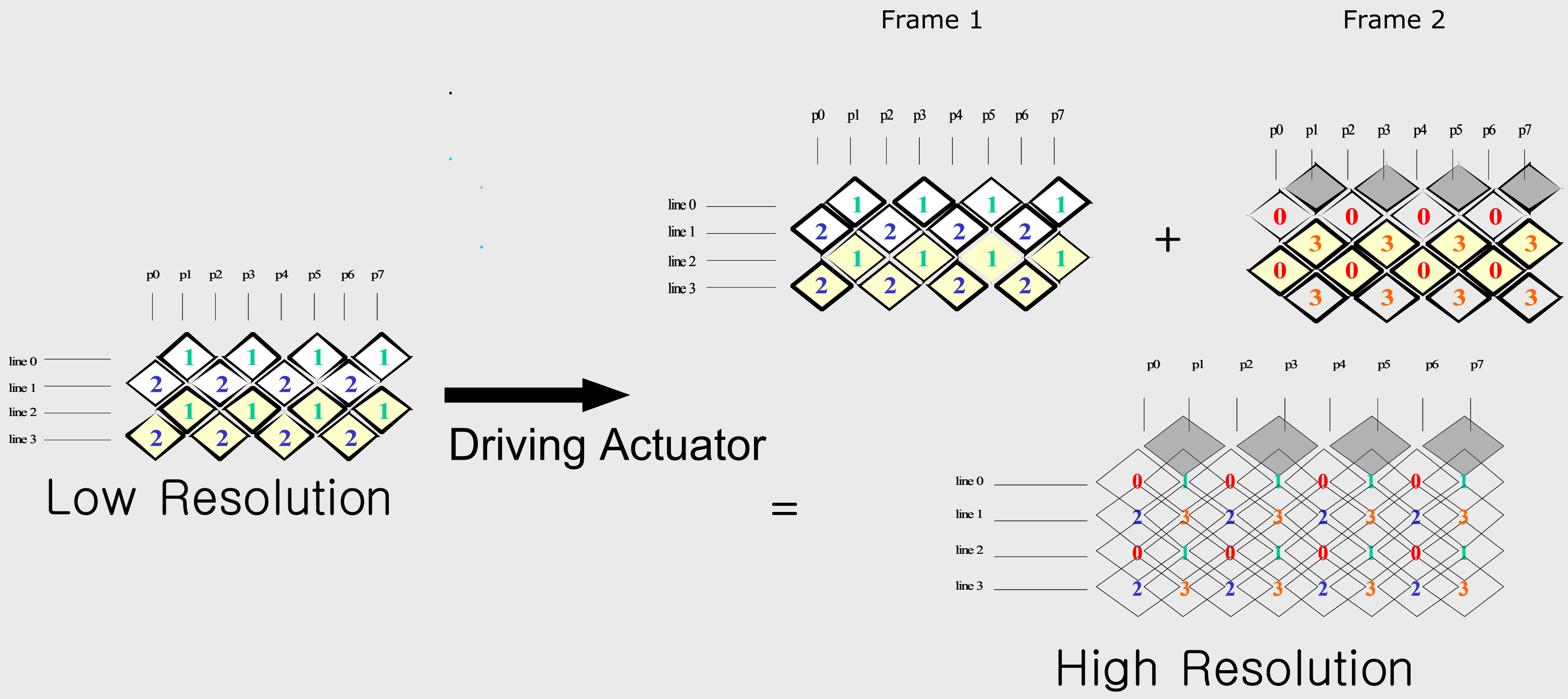
(460800 pixels)


Focus
Adjust


Focus Lens
Color
Wheel
Illum.
Lens
Focus
Adjust
Mirror
UV
Filter
Illum.
Lens
Illum.
Lens
Actuator
Proj.
Lens
Field
Lens
DMD

Design Concept

1. Display Resolution



Frame 1

Frame 2

Driving Actuator

Low Resolution

High Resolution

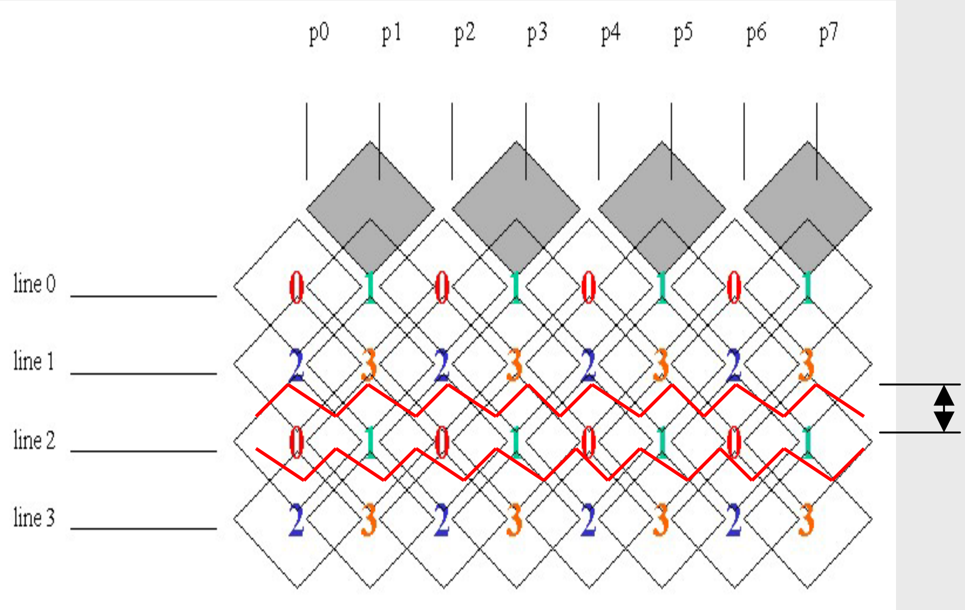
p0
p1
p2
p3
p4
p5
p6
p7
line 0
line 1
line 2
line 3
0
1
2
3
+
=

X1 RESOLUTION

X2 RESOLUTION

Realizing Method

Mirror movement by vibration of Piezoelectric material.

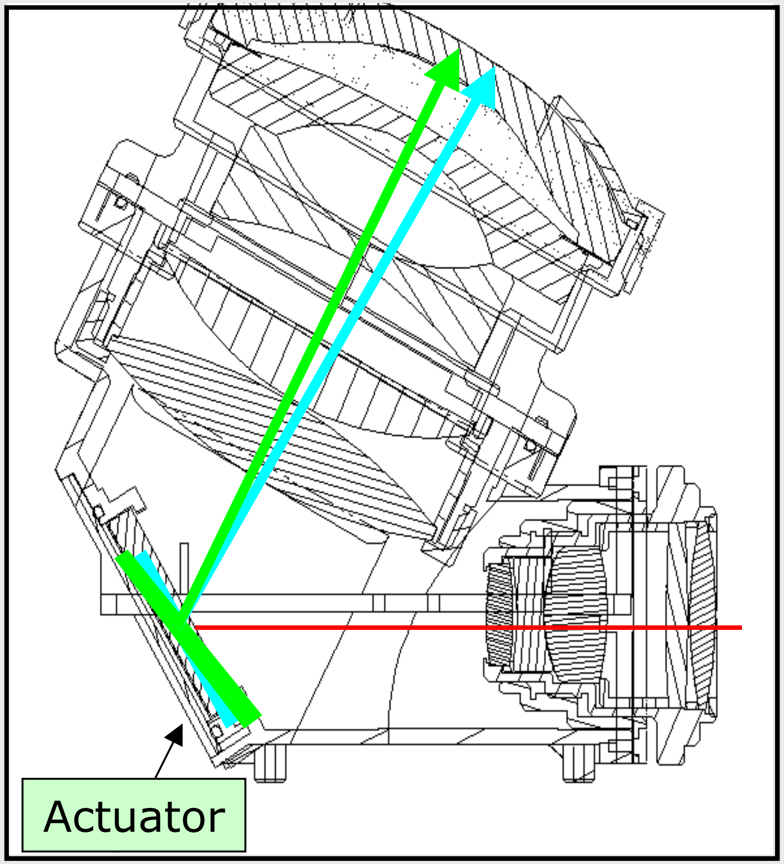

p0
p1
p2
p3
p4
p5
p6
p7
line 0
line 1
line 2
line 3
0
1
2
3

Vibration Distance = ½ Pixel

X2 Resolution

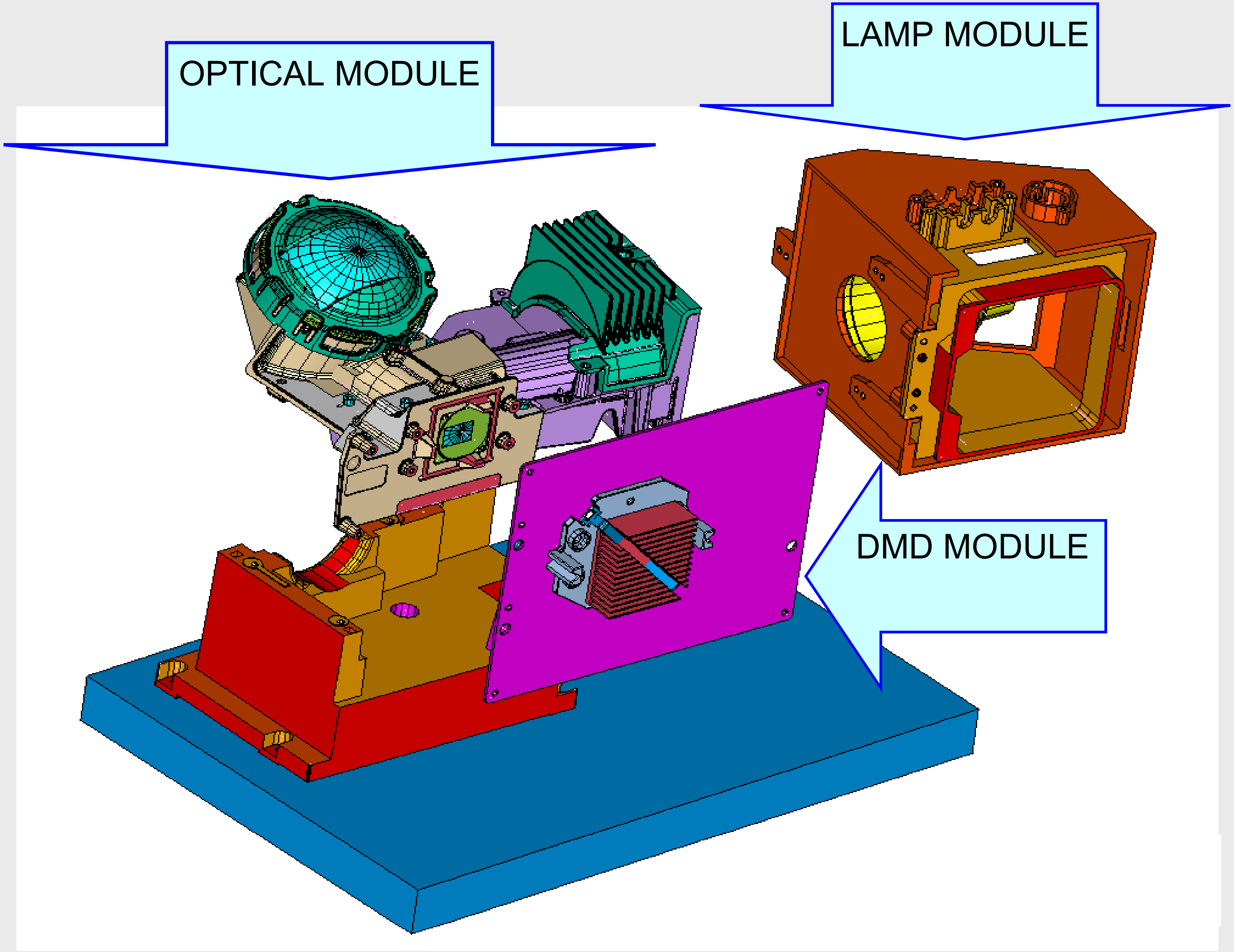
460800 pixels -> 921600 pixels

Effect = Jagged line to Smooth line



Folding Mirror Vibration

Light Engine Breakdown

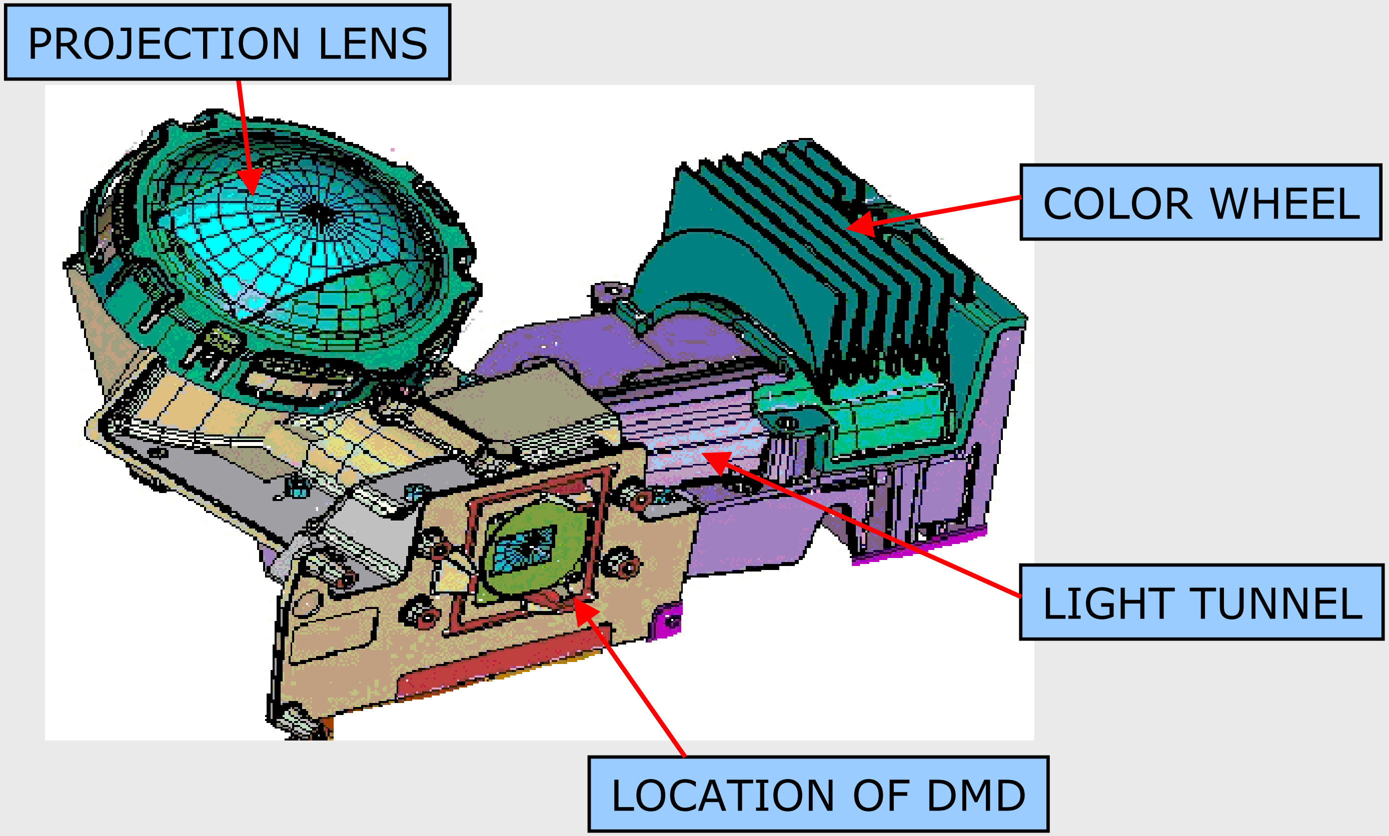


OPTICAL MODULE

LAMP MODULE

DMD MODULE

Optical Module



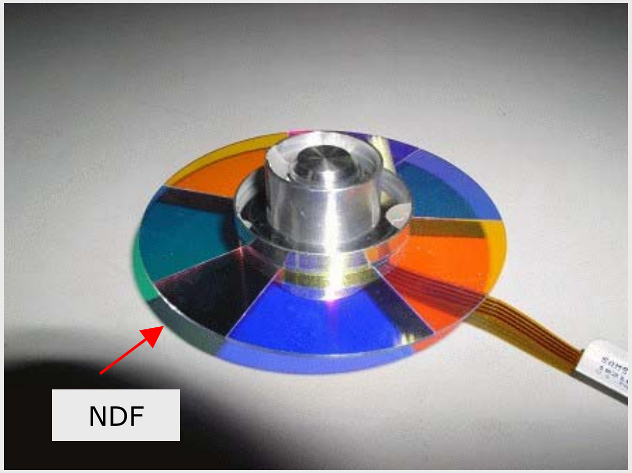
PROJECTION LENS

COLOR WHEEL

LIGHT TUNNEL

LOCATION OF DMD

Color Wheel



Parameter	Value	Unit	Comment
Number of segments	**7**		
Filter Thickness	0.7	mm	
Angle of Incidence	15	Deg.	Average
Color sequence (as seen by light beam)	GBRG(NDG)BR		

*Addition = Neutral Density Filter

NDF Purpose: Decrease Dither noise.

<Air Bearing Type Motor>

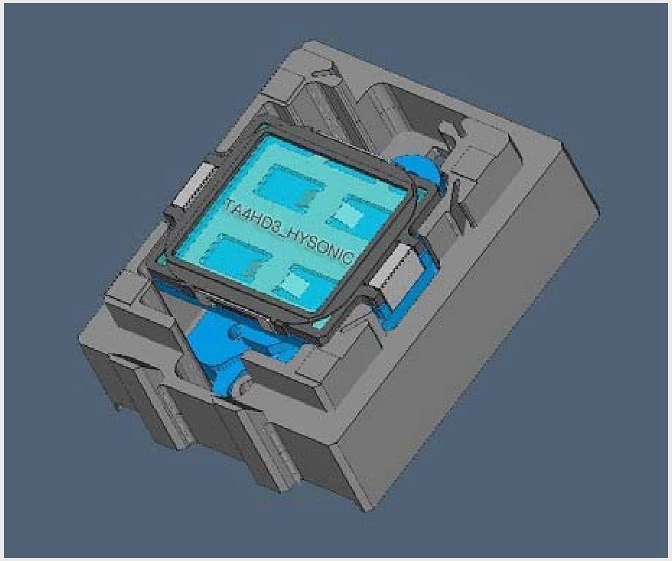
Life time : over 30,000 hrs (max 50,000 hrs)

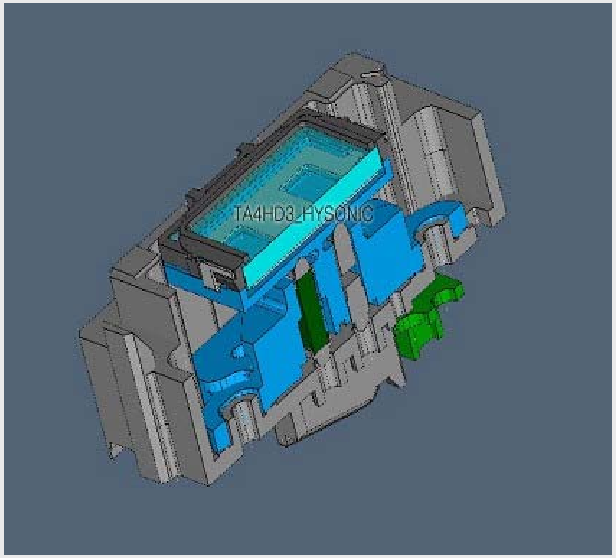
On/off : over 50,000 times (max 300,000 times)

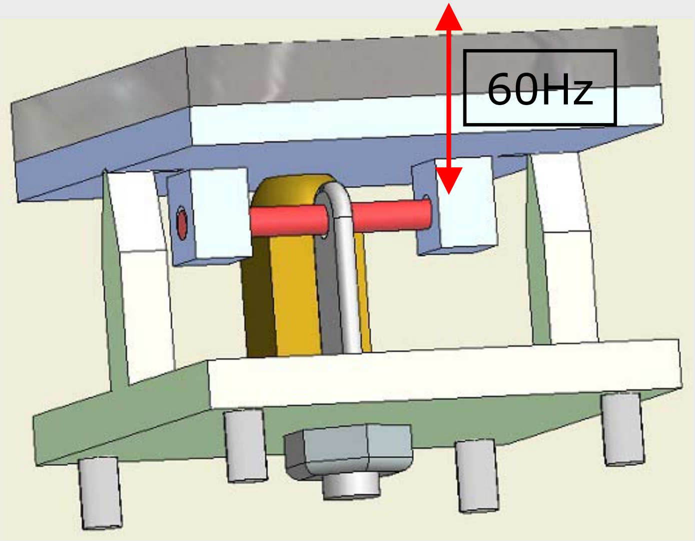
Less Vibration & Noise

Parameter		Value	Unit	Comment
Outer diameter		65	mm	
Clear Aperture (Radius)		14.75	mm	Min
Inside Diameter		33.5	mm	Includes adhesive allowance
Motor	Manuf.	Nidec		
	Model	PC-20 VA		Air Bearing
	Unaxis MM#	102152589		
	Speed	**10,800**	rpm	
Direction of Rotation		CW		
Residual Dynamic Unbalance		G6.3		According to ISO 1940

Actuator


TA4HD3_HYSONIC


TA4HD3_HYSONIC



No.	Items	Specification
1	Mass	79g
2	Mirror tilt angle range	0~0.015deg.
3	State transition time	<1.0 mSec
4	Initial static angle	+/-0.025deg.

Purpose: Smooth Picture by ½ Pixel movement using 60Hz mirror vibration.

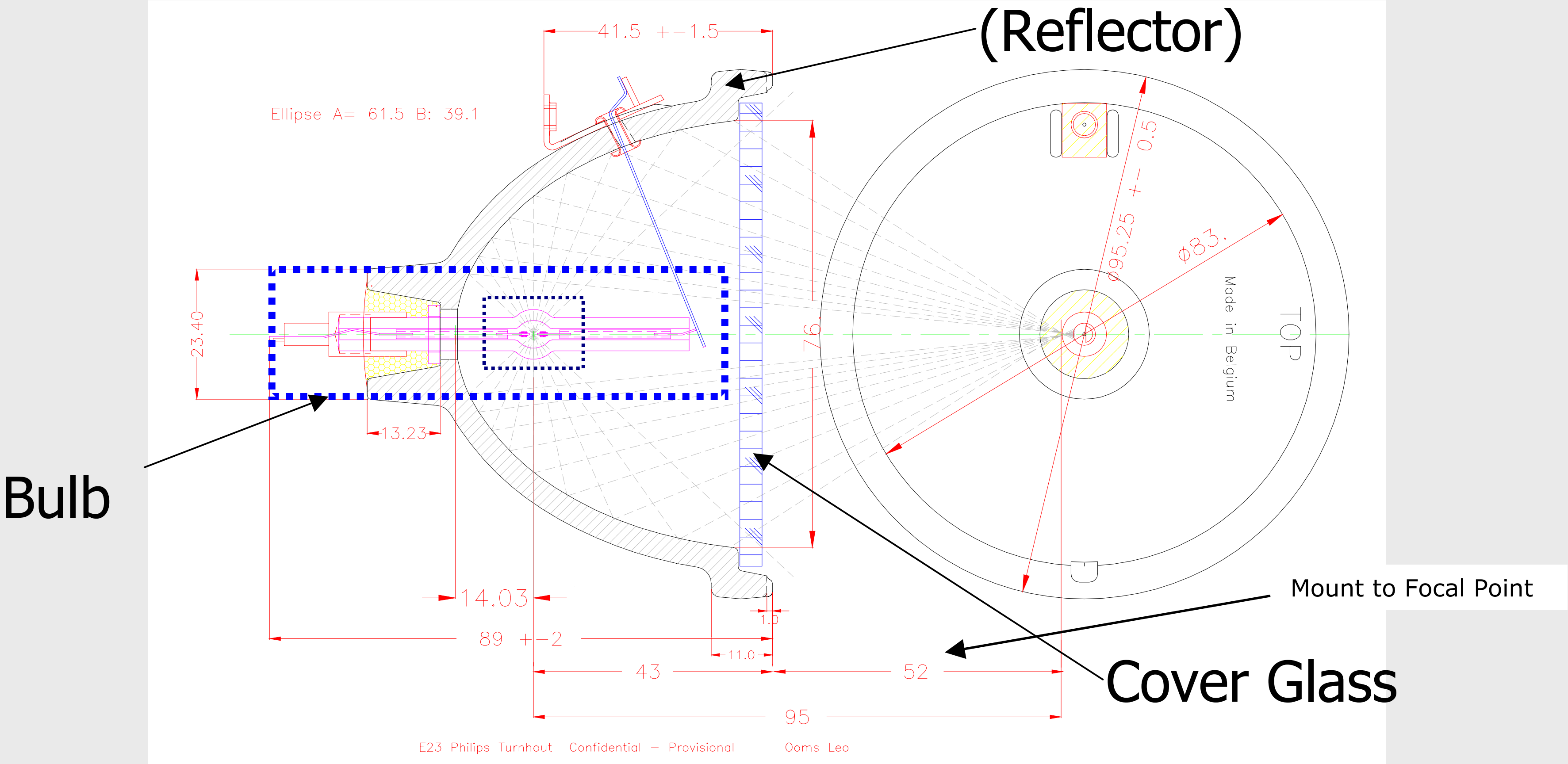
Lamp

Full name : High Pressure Mercury Lamp
Maker : Philips
Specification

- Arc gap : 1.0 mm
- Wattage : 100W or 120W
- Life time : about 8000 – 6000hrs

Optical Specification

- Reflector type : E23
- Size : 95.25 +/-0.5mm
- Mount to focal point : 52mm


(Reflector)
Bulb
Cover Glass
Mount to Focal Point
41.5 +-1.5
Ellipse A= 61.5 B: 39.1
23.40
13.23
76
14.03
89 +-2
1.0
11.0
43
52
95
ø95.25 +- 0.5
ø83.
Made in Belgium
TOP
E23 Philips Turnhout Confidential – Provisional
Ooms Leo

Ballast

Maker : Philips

Type no. : EUC 120PH/11

Ignition : 20KV(Max 25KV)

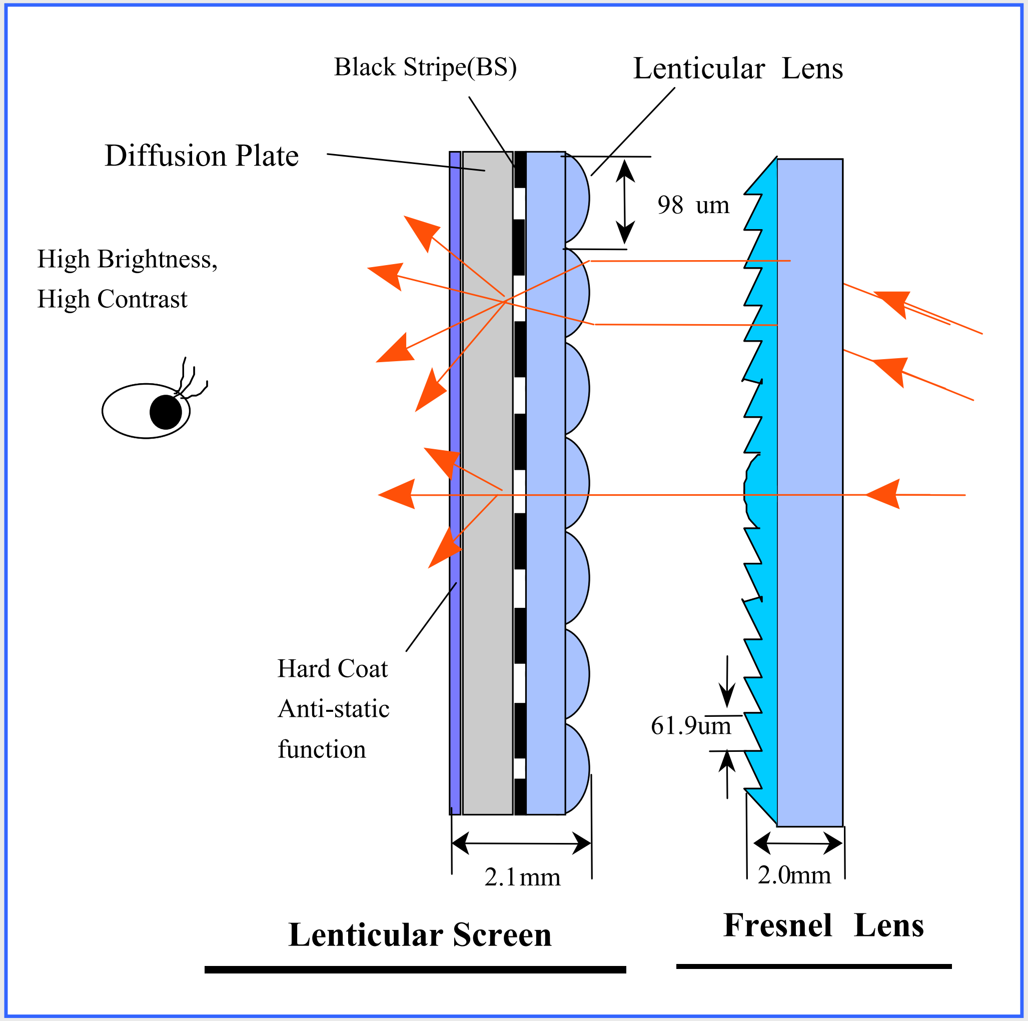
Size : 150 x 60 x 32mm

Ambient temp. : under 65deg C.

Screen

Good Point :

1. Good Contrast
2. No reflection of out-light.
3. Good View Angle (140 deg)
4. Reduced Moire
5. Increased Screen Gain


Black Stripe(BS)
Lenticular Lens
Diffusion Plate
98 um
High Brightness,
High Contrast
Hard Coat
Anti-static
function
61.9um
2.1mm
2.0mm
Lenticular Screen
Fresnel Lens

Optical Specification

Parameter	**Nominal value**	**unit**	**Comment**
Brightness	460	nits	7-segment color wheel, TI development board, no spoke light recapture, reference lamp
Uniformity (ANSI) - Typical - Minimal	 +/- 15 +/- 25	 % %	+: brightest of 13 ANSI points/average of 9 points -: darkest of 13 ANSI points/average of 9 points
Contrast full on/off – Typical	1500:1	n.a.	7 segment color wheel, TI development board, no spoke light recapture

Optical Specification Continued

Parameter	**Nominal value**	**unit**	**Comment**
Color Temperature	7,500 K (Warm 1)	n.a.	measured in image center
F-number	≥ 2.6	n.a.	design value
Projection distance at 50" screen size	585	mm	projection distance: distance from vertex of front lens to projection screen
Exit pupil position	30.98 mm	mm	design value, distance to vertex of front lens
F.O.V (Field of View)	94	deg.	design value
Panel size	12.451 x 7.008	mm	Diamond Pixel Configuration

Optical Specification Continued

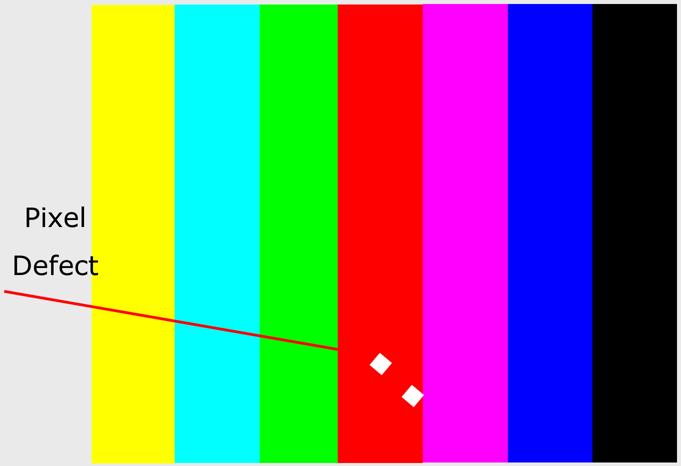
Parameter	**Nominal value**	**unit**	**Comment**
Lateral color aberration @ 50” (R-G; B-G)	≤ 7 ≤ 8.5	μm μm	Design value 440/546/640 nm
TV distortion - in horizontal direction - in vertical direction	≤ |0.3| ≤ |0.3|	% %	Pin Cushion or Barrel condition
folding angle	66	deg.	mechanical design value

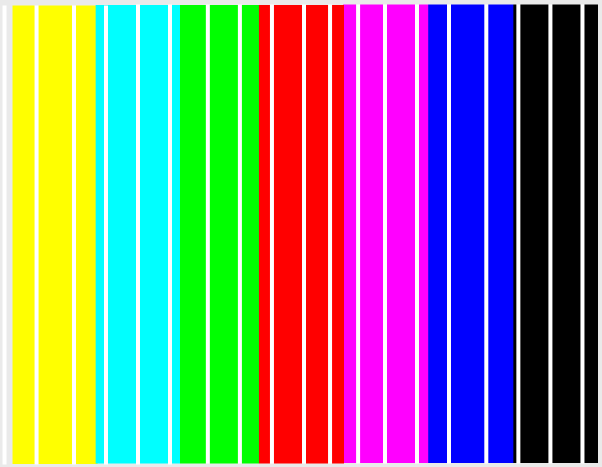
Service Hint #1

DMD BOARD ASSY

Problem : PIXEL DEFECT, VERTICAL LINE

Solution : Change the DMD Board assembly.





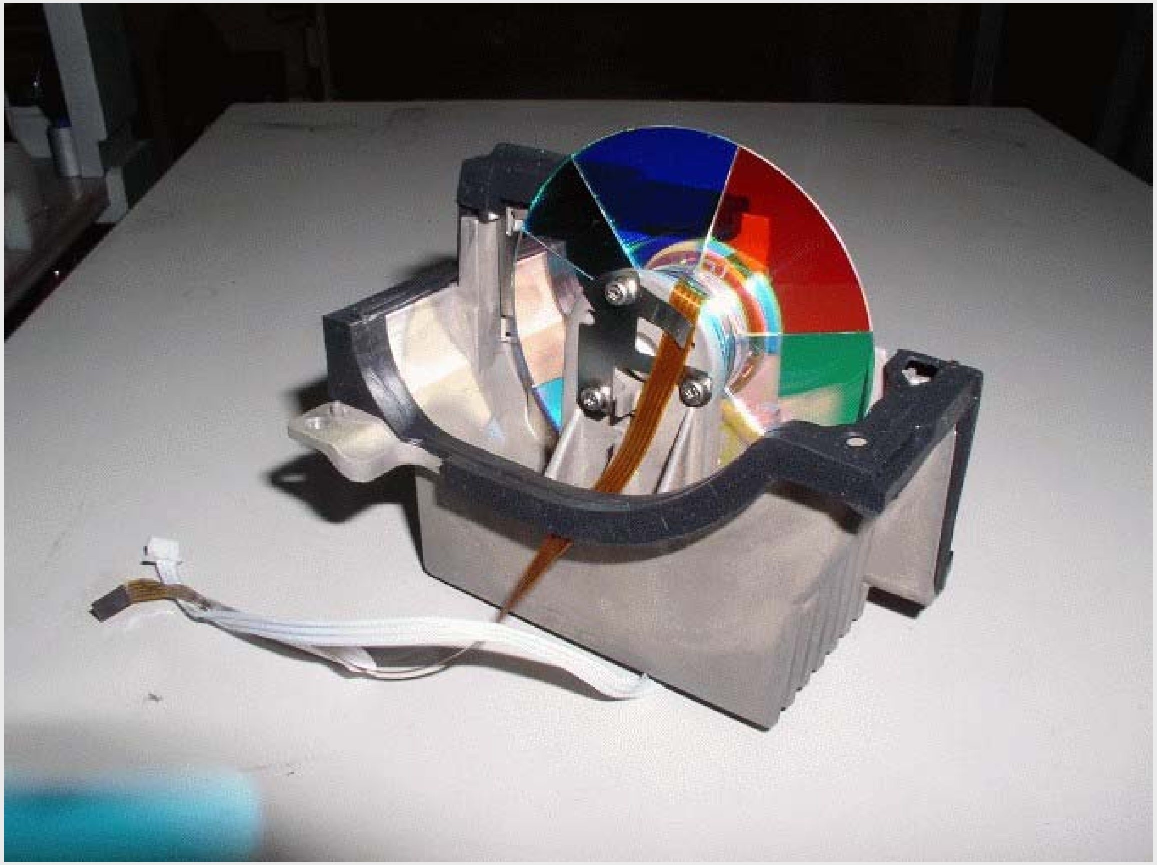
Vertical Line Problem (Jail Bar effect)

Service Hint #2

Color Wheel Assembly

Problem : INCREASED NOISE

Solution : Change the Color wheel module.



Service Hint #3

LAMP ASSY

Problem : LOW BRIGHTNESS or No Power

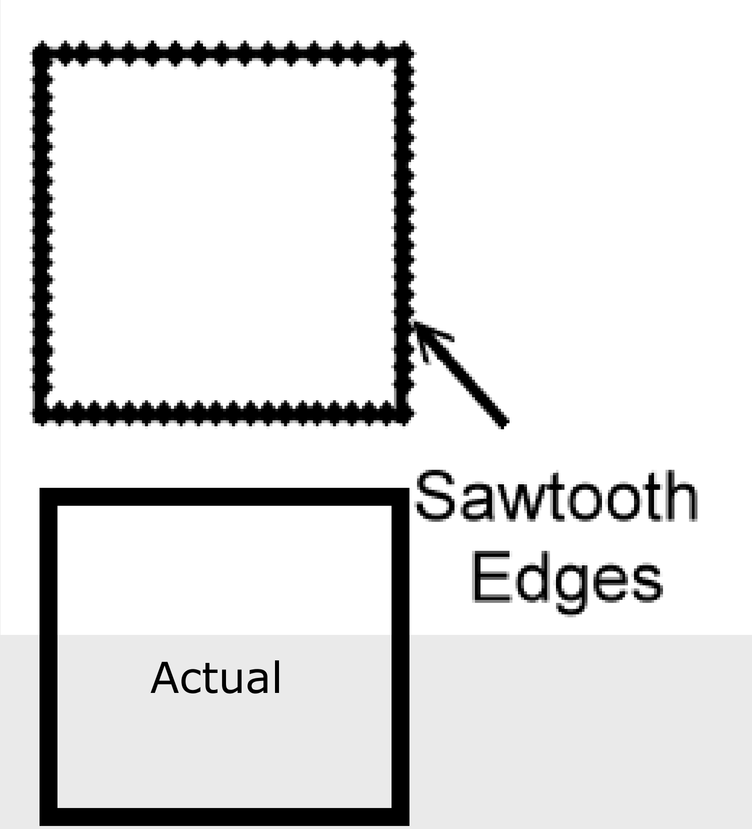
Solution : Change the Lamp module

Service Hint #4

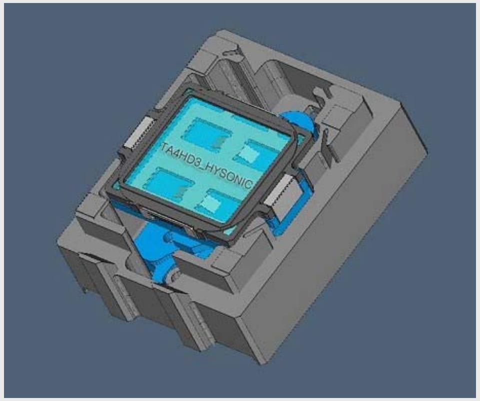
ACTUATOR

Problem : High Frequency Noise(1200Hz), Distorted edges in Picture

Solution : Change the Actuator

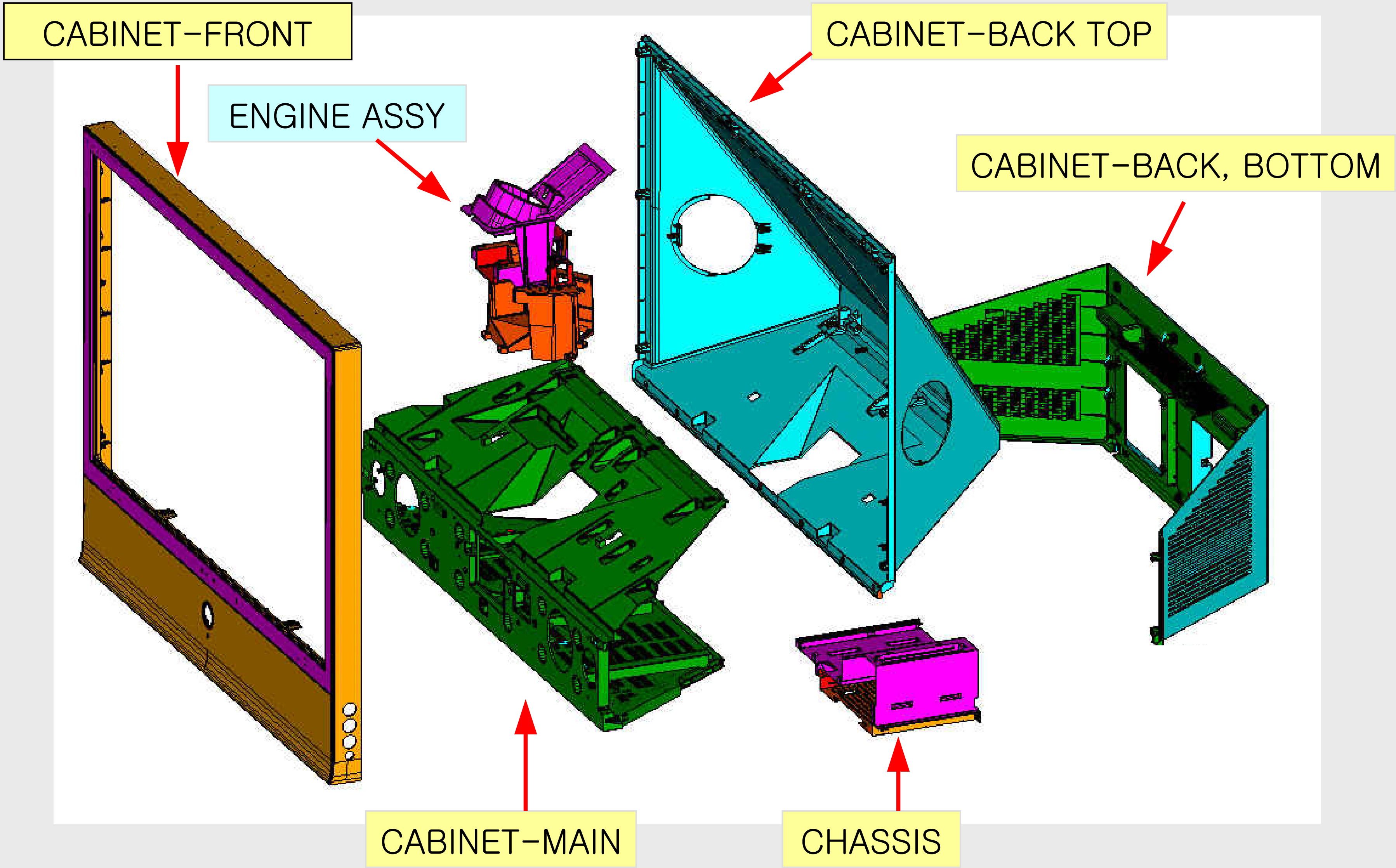

Sawtooth
Edges

Actual


TA4HD3_HYSONIC

Mechanic

L3 DLP Main Parts



CABINET-FRONT

ENGINE ASSY

CABINET-BACK TOP

CABINET-BACK, BOTTOM

CABINET-MAIN

CHASSIS

Set Dimensions

MODEL	W x D x H (mm Unit)	Weight (Kg)	W x D x H (mm Box)	Weight (Kg)
46L3	1094 x 339 x 814	31.5	1205 x 455 x 950	39
50L3	1182 x 359 x 870	35	1300 x 480 x 1010	43
56L3	1330 x 396 x 963	41.5	1450 x 520 x 1105	53
61L3	1446 x 425 x 1035	45	1580 x 565 x 1170	57

Mirror Size

MODEL	SIZE (W1 x W2 x H)
46L3	1035 x 530 x 523
50L3	1030 x 580 x 570
56L3	1279 x 650 x 645
61L3	1395 x 692 x 700

Screen Size

MODEL	SIZE (W x H)
46L3	1021 x 580.5
50L3	1126 x 646
56L3	1257 x 713.5
61L3	1381 x 790

* Dimensions in mm